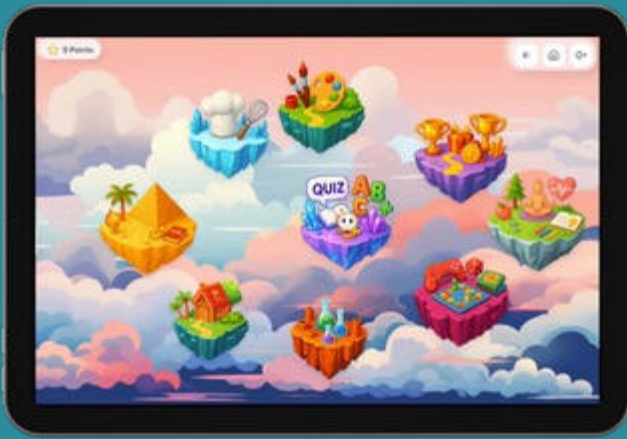


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Collecting and Representing Data - Year 3

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Data Investigation Cycle



Graph Features at a Glance



Every feature helps the reader understand the data.

Survey Studio - Question Cards

Choose a card. Ask 12-20 people. Tally one response each. Represent and interpret the data.

1

Favourite school activity?



- Reading
- Sport
- Art
- Music

2

How do you travel to school?



- Walk
- Bike or scooter
- Car
- Bus

3

Best fruit?



- Apple
- Banana
- Orange
- Berries

4

Preferred wet-day game?



- Drawing
- Board games
- Reading
- Construction

5

Most useful playground area?



- Climbing
- Swings
- Ball court
- Quiet space

6

Favourite garden visitor?



- Butterfly
- Bee
- Bird
- Ladybird

Survey Studio - Tally Sheet

★ Year 3 Mathematics ★

Surveyor:

Question:

Target number
of respondents:

Category	Tally	Total



Record one tally for each response.
Count every tally group carefully.



Survey Studio - Compare Two Groups

Surveyor:

Question:

Group A:

Group B:

Category	Group A tally	Group A total	Group B tally	Group B total

★ > What is the biggest difference between the groups?

★ > What is one similarity?

Survey Studio - Representation Planner

PLAN YOUR SURVEY

Question

Title

Categories

☐ Picture graph

☐ Column graph

DRAW YOUR GRAPH



LABEL AND ANALYSE

Key or scale

Horizontal-axis label

Vertical-axis label

The most common response was...

The least common response was...

The data suggests...



Graph Match-Up



- 1 Shuffle the cards.
- 2 Build each set with one data table, one graph and one interpretation.
- 3 Explain why the three cards match.
- 4 Check the key.



SET A

DATA TABLE

GRAPH

INTERPRETATION

SET B

DATA TABLE

GRAPH

INTERPRETATION

SET C

DATA TABLE

GRAPH

INTERPRETATION

SET D

DATA TABLE

GRAPH

INTERPRETATION

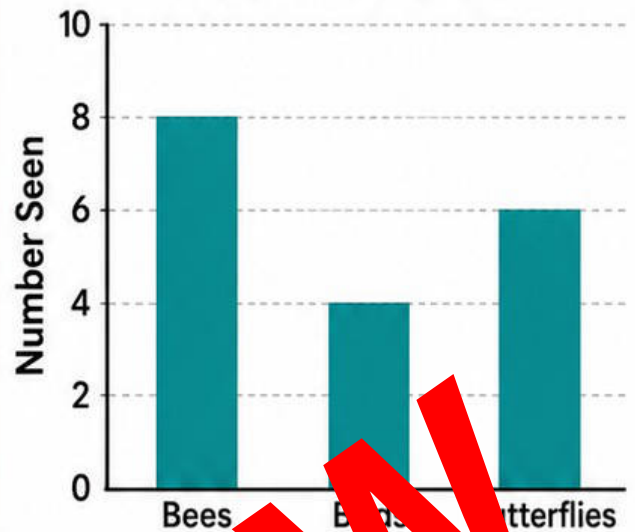
Graph Match-Up - Card Sheet A

Garden Visitors

Visitor	Number Seen
Bees	8
Birds	4
Butterflies	6

A1

Garden Visitors



A2

Bees were seen most often, with 8 sightings.

A3

Books Borrowed

Genre	Number Borrowed
Adventure	10
Animals	6
Space	8

B1

Books Borrowed

Genre	Number of Books
Adventure	    
Animals	  
Space	   

1 book symbol = 2 books

B2

Adventure books were borrowed 4 more times than animal books.

B3

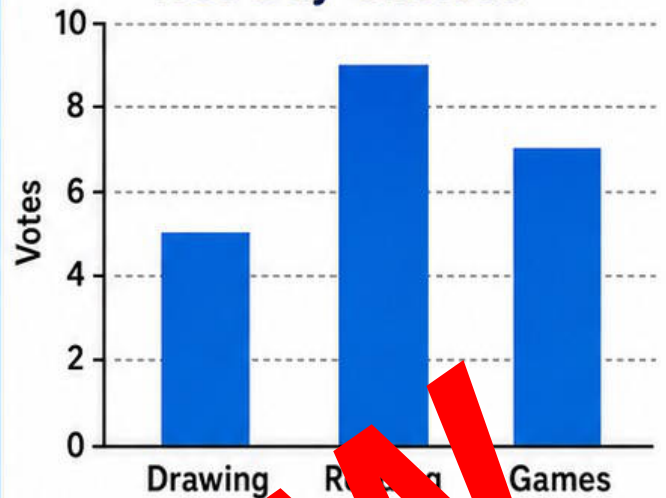
Graph Match-Up - Card Sheet B

Wet-Day Choices

Choice	Votes
Drawing	5
Reading	9
Games	7

C1

Wet-Day Choices



Reading was the most popular choice, with 9 votes.

C3

Fruit Bowls Sold

Fruit	Bowls Sold
Apple	12
Banana	8
Berry	10

D1

Fruit Bowls Sold

 1 bowl symbol = 2 bowls

Apple	     
Banana	   
Berry	    

D2

Four more apple bowls than banana bowls were sold.

D3

Graph Match-Up - Self-Check Key

1 SET A: A1 + A2 + A3



Bees were seen most often,
with **8** sightings.



2 SET B: B1 + B2 + B3



Adventure books were
borrowed **4** more times
than animal books.



3 SET C: C1 + C2 + C3



Reading was the most
popular choice, with
9 votes.



4 SET D: D1 + D2 + D3



Four more apple bowls
than banana bowls
were sold.

Apple	Banana
 	 
 	 



Explain the evidence before checking the code.

Data Detective Board Game

Mathematics

START



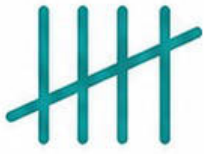
RULES

Roll one die. Move. Draw a card that matches the icon.

Record your answer. Correct answer = stay. Try again next turn if needed.

Data Detective - Cards 1-12

1



What does a tally record?

2



What does a picture-graph key tell you?

3



Name one feature of a column graph.

4

4, 9, 6

Values are 4, 9, 6. Which is greatest?

5

$$12 - 7 = ?$$

Find the difference between 12 and 7.

6



What should every graph have at the top?

7



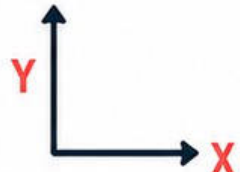
True or false: scale intervals must be equal.

8



One star = 2 votes. What do 4 stars mean?

9



Which axis usually shows categories?

10

3, 5, 6

What is the total of 3, 5 and 6?

11



Why do we collect data?

12

8, 2, 5

Name the least value: 8, 2, 5.

Data Detective - Cards 13-24

13



One book = 4 books.
What does half a
book mean?

14



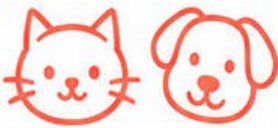
What does
frequency mean?

15



Which graph
uses columns?

16



Data: Cats 6,
Dogs 10.
How many more
dogs?

17



What should you
check after drawing
columns?

18



True or false:
a graph may omit
category labels.

19



Which is clearer for
exact comparisons:
column graph
or story?

20



What is
 $7 + 8 + 5$?

21



Name one way
to collect data.

22



What makes a
survey question fair?

23



What should a
conclusion include?

24



Data: Red 4, Blue 9,
Green 7. Which
colour is most
common?

Data Detective - Answer Key

1	one response	13	2 books
2	the value of each symbol	14	how often a value occurs
3	title, axis, labels, scale, columns or grid	15	column graph
4	9	16	4
5	5	17	might not match the scale
6	a title	18	else
7	true	19	column graph
8	8 x	20	20
9	horizontal axis	21	survey, observation or experiment
10	14	22	same clear question and choices
11	to answer a question	23	evidence from the data
12	2	24	blue



Data Detective - Player Recording Sheet

Year 3 Mathematics



Player:

Partner:

Date:

Turn	Card number	My answer	Checked
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Reflection

One graph feature I remembered...



One skill I will practise...

Picture Graph Builder

#

Challenge number

Graph title



Key: 1 symbol = ____

☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐
---	---	---	---



CHECKLIST

☐

Title

☐

Categories

☐

Correct number of symbols

☐

Key

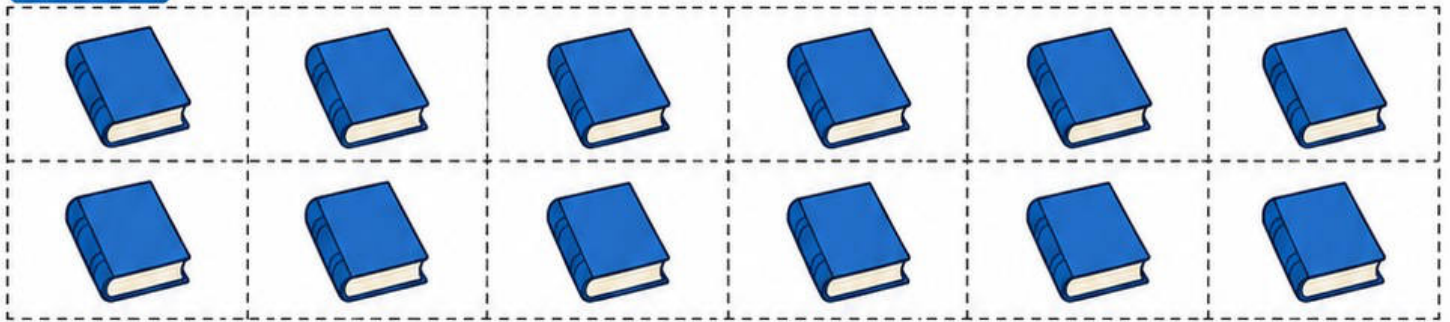
☐

Two data statements

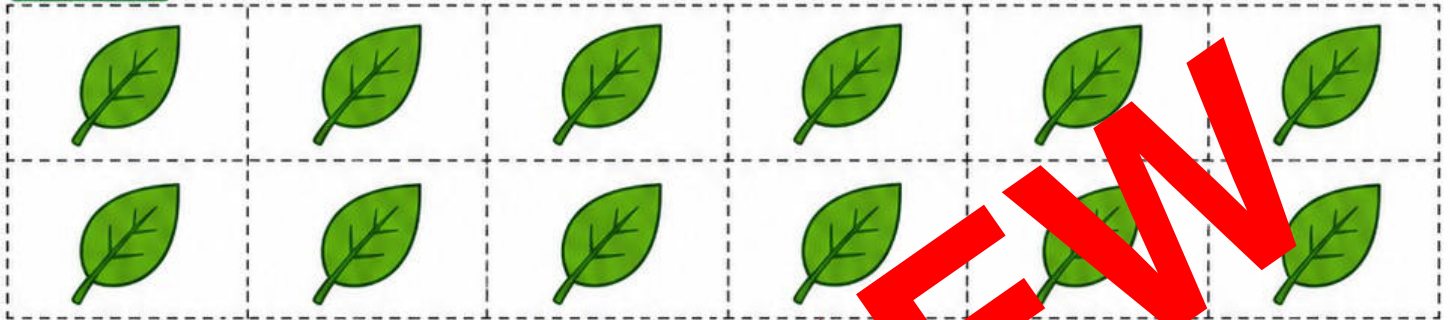
PREVIEW

Picture Graph Builder - Icon Tiles

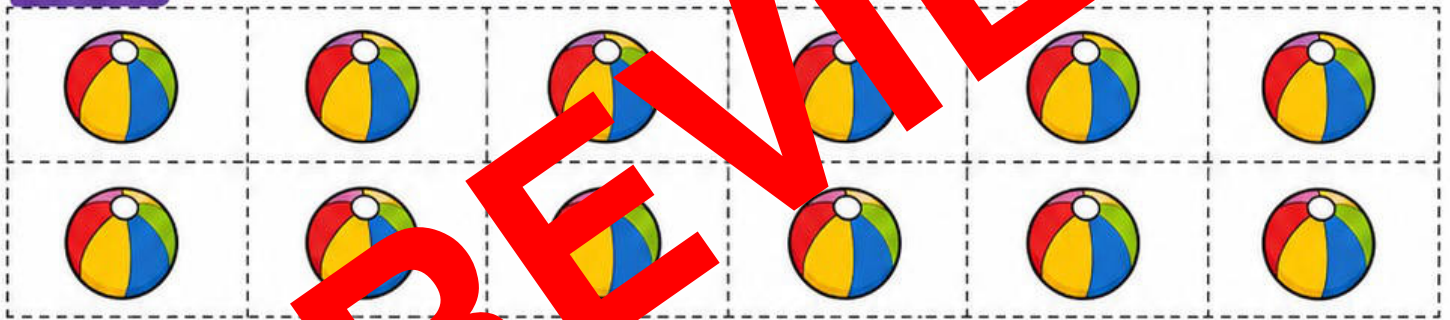
BOOKS



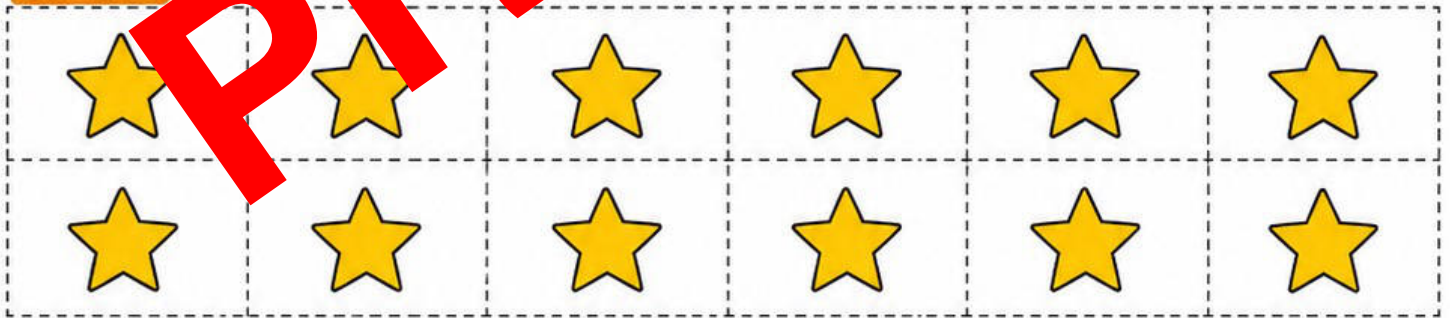
LEAVES



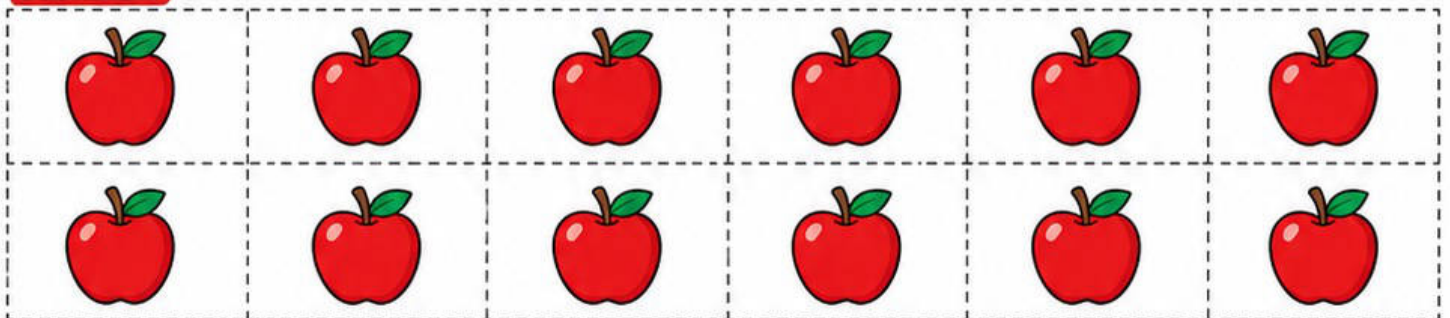
BALLS



STARS



APPLES



Picture Graph Builder - Challenge Cards

1

Books:

Adventure 8,
Animals 4,
Space 10,
Mystery 6.



Key 1 symbol = 2.

2

Garden:

Herbs 6,
Flowers 10,
Vegetables 8,
Fruit 4.



Key 1 symbol = 2.

3

Sports:

Soccer 12,
Tennis 6,
Swimming 8,
Cycling 10.



Key 1 symbol = 2.

4

Weather:

Sunny 15,
Cloudy 10,
Rainy 5,
Windy 10.



Key 1 symbol = 5.

5

Snacks:

Fruit 6,
Crackers 6,
Yogurt 10,
Popcorn 4.



Key 1 symbol = 2.

6

Transport:

Walk 6,
Bike 8,
Car 12,
Bus 4.



Key 1 symbol = 2.

7

Pets:

Dogs 10,
Cats 6,
Birds 8,
Rabbits 4.



Key 1 symbol = 2.

8

Games:

Drawing 5,
Reading 10,
Blocks 15,
Cards 10.



Key 1 symbol = 5.

Picture Graph Builder - Partner Check

Builder

Checker

Challenge number

Title

Key

Category	Frequency	Symbols shown	Correct?

☐

The title matches the data

☐

The key is used correctly

☐

The symbols are equal in size

☐

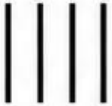
The graph shows every category

Evidence statement 1

Evidence statement 2

Name: _____

Tally and Total Tables - Page 1

School Garden Visitors		
Visitor	Tally	Total
Butterflies		
Bees		
Ladybirds		
Birds		

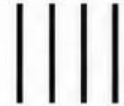
1 Which visitor was seen most often?

2 Which visitor was seen least often?

3 How many visitors were seen altogether?

4 How many more bees than butterflies were seen?

Tally and Total Tables - Page 1

School Garden Visitors		
Visitor	Tally	Total
Butterflies		6
Bees		9
Ladybirds		4
Birds		2

1 Which visitor was seen most often?

Bees

2 Which visitor was seen least often?

Birds

3 How many visitors were seen altogether?

21 visitors

4 How many more bees than butterflies were seen?

3 more bees

Name: _____

Tally and Total Tables - Page 2

Use the lunch-fruit responses to complete the tally and total table.

Apple, Pear, Banana, Apple, Orange, Pear, Apple, Banana,
Apple, Pear, Orange, Apple, Banana, Pear, Apple, Apple,
Orange, Banana, Pear, Apple

Fruit	Tally	Total
Apple		
Pear		
Banana		
Orange		

- 1

Which fruit was chosen most?
- 2

Which fruit was chosen least?
- 3

How many responses were recorded?

Tally and Total Tables - Page 2

Use the lunch-fruit responses to complete the tally and total table.

Apple, Pear, Banana, Apple, Orange, Pear, Apple, Banana,
Apple, Pear, Orange, Apple, Banana, Pear, Apple, Apple,
Orange, Banana, Pear, Apple

Fruit	Tally	Total
Apple		8
Pear		5
Banana		4
Orange		3

1 Which fruit was chosen most?

Apple

2 Which fruit was chosen least?

Orange

3 How many responses were recorded?

20 responses

Name: _____

Reading Picture Graphs - Page 1

Pets Seen at the Park	
Dogs	    
Cats	  
Birds	   
Rabbits	 

1 paw = 2 pets

- How many dogs were seen? _____
- How many birds were seen? _____
- Which pet was seen least? _____
- How many more dogs than rabbits were seen? _____
- How many pets were seen altogether? _____

Reading Picture Graphs - Page 1

Pets Seen at the Park	
Dogs	    
Cats	  
Birds	   
Rabbits	 

1 paw = 2 pets

- 1

How many dogs were seen?

10 dogs
- 2

How many birds were seen?

8 birds
- 3

Which pet was seen least?

Rabbits
- 4

How many more dogs than rabbits were seen?

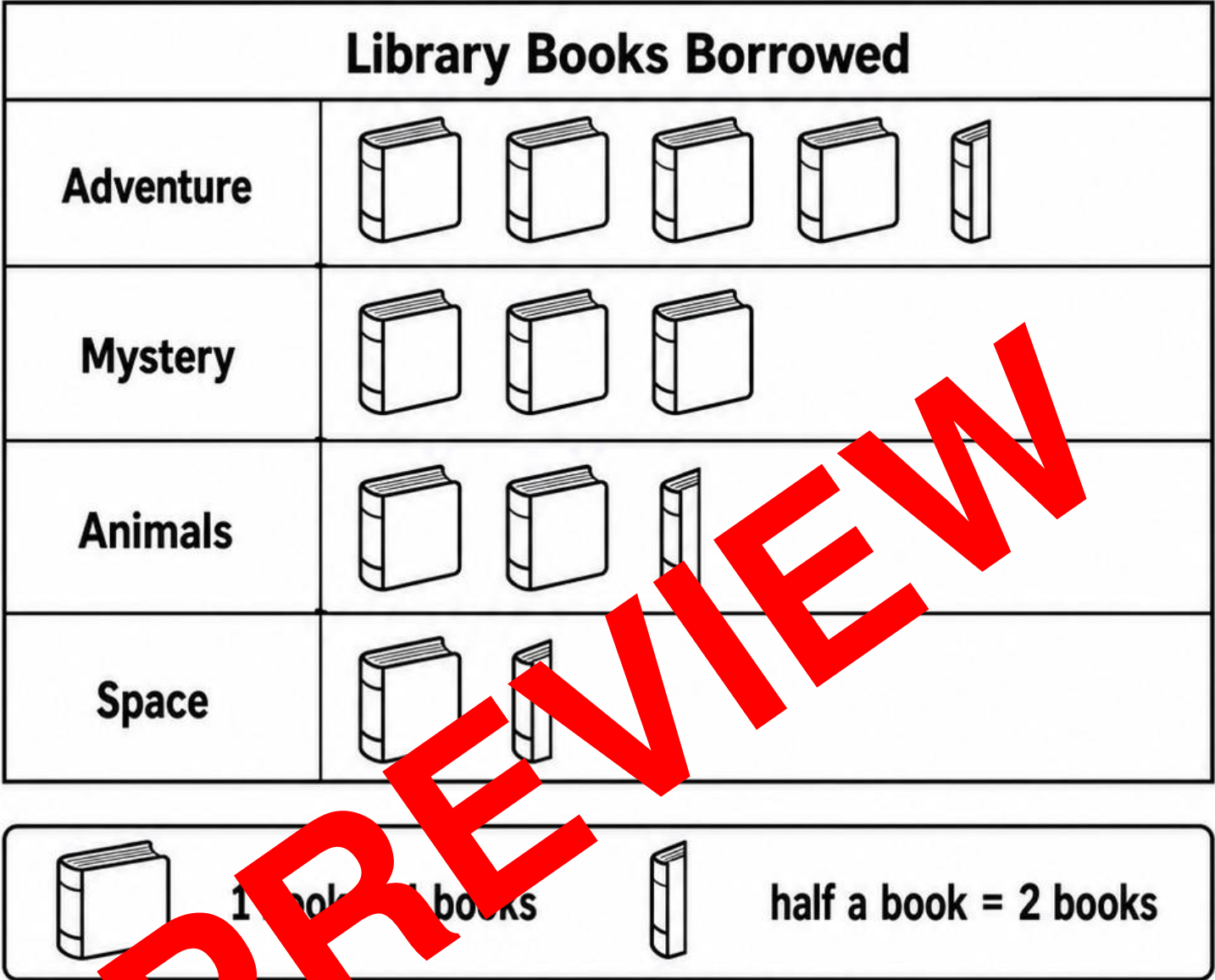
6 more dogs
- 5

How many pets were seen altogether?

28 pets

Name: _____

Reading Picture Graphs - Page 2



- 1

What does half a symbol represent?

- 2

How many adventure books were borrowed?

- 3

How many more adventure than animal books?

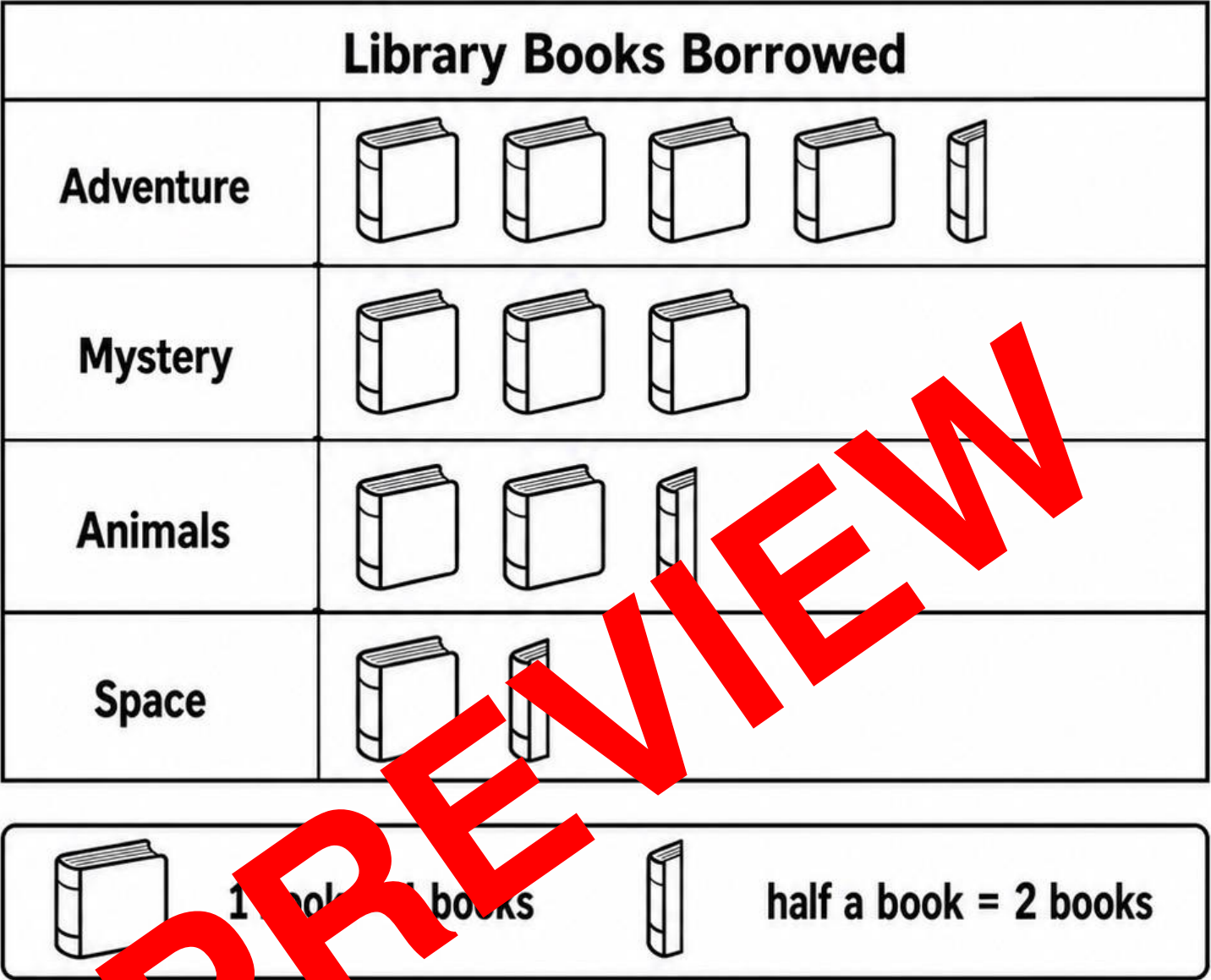
- 4

How many books altogether?

- 5

Which two categories have a total of 18 books?

Reading Picture Graphs - Page 2



- 1

What does half a symbol represent?

2 books
- 2

How many adventure books were borrowed?

18 books
- 3

How many more adventure than animal books?

8 more
- 4

How many books altogether?

46 books
- 5

Which two categories have a total of 18 books?

Mystery and Space

Name: _____

Building Picture Graphs – Page 1

Fruit Smoothies Sold	
Mango	12
Berry	8
Banana	10
Apple	6

Use the key 1 cup = 2 smoothies. Draw a picture graph that matches the table.

Mango	
Berry	
Banana	
Apple	

Title: _____

1 cup = 2 smoothies

Write one statement supported by your graph.

Building Picture Graphs – Page 1

Fruit Smoothies Sold	
Mango	12
Berry	8
Banana	10
Apple	6

Use the key 1 cup = 2 smoothies. Draw a picture graph that matches the table.

Mango	
Berry	
Banana	
Apple	

Title: Fruit Smoothies Sold

1 cup = 2 smoothies

Write one statement supported by your graph.

Mango was the best-selling flavour with 12 smoothies.

Name: _____

Building Picture Graphs - Page 2

Picnic Snack Survey	
Pretzels	8
Popcorn	12
Fruit	6
Crackers	10

Choose a useful key and create a complete picture graph.

Pretzels	
Popcorn	
Fruit	
Crackers	

Title: _____

Key: 1 symbol = ____ votes

Statement 1: _____

Statement 2: _____

Building Picture Graphs - Page 2

Picnic Snack Survey	
Pretzels	8
Popcorn	12
Fruit	6
Crackers	10

Choose a useful key and create a complete picture graph.

Pretzels	   
Popcorn	     
Fruit	  
Crackers	    

Title: Picnic Snack Survey

Key: 1 symbol = 2 votes

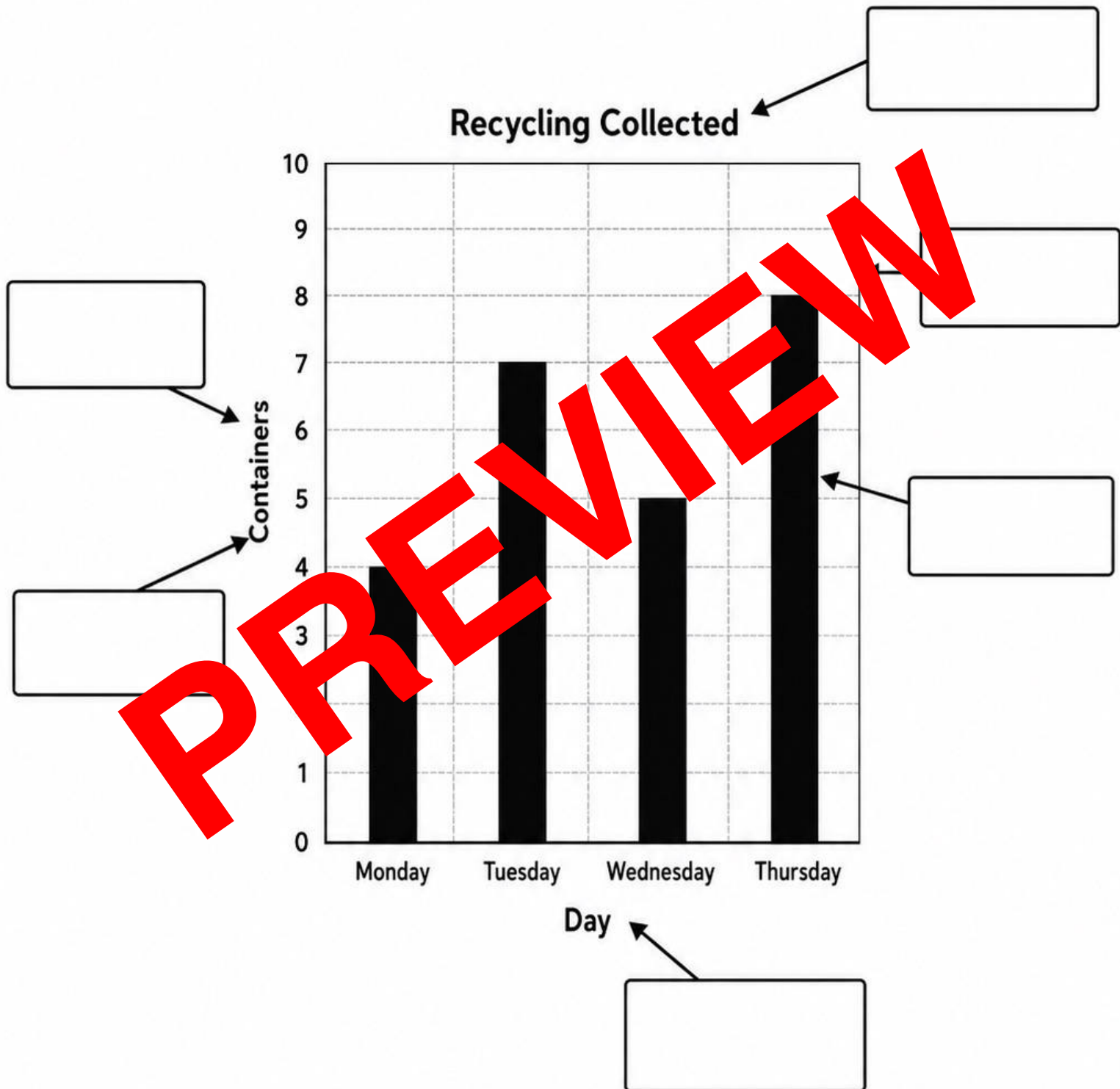
Statement 1:
Popcorn was most popular with 12 votes.

Statement 2:
Fruit had 6 fewer votes than popcorn.

Name: _____

Parts of a Column Graph

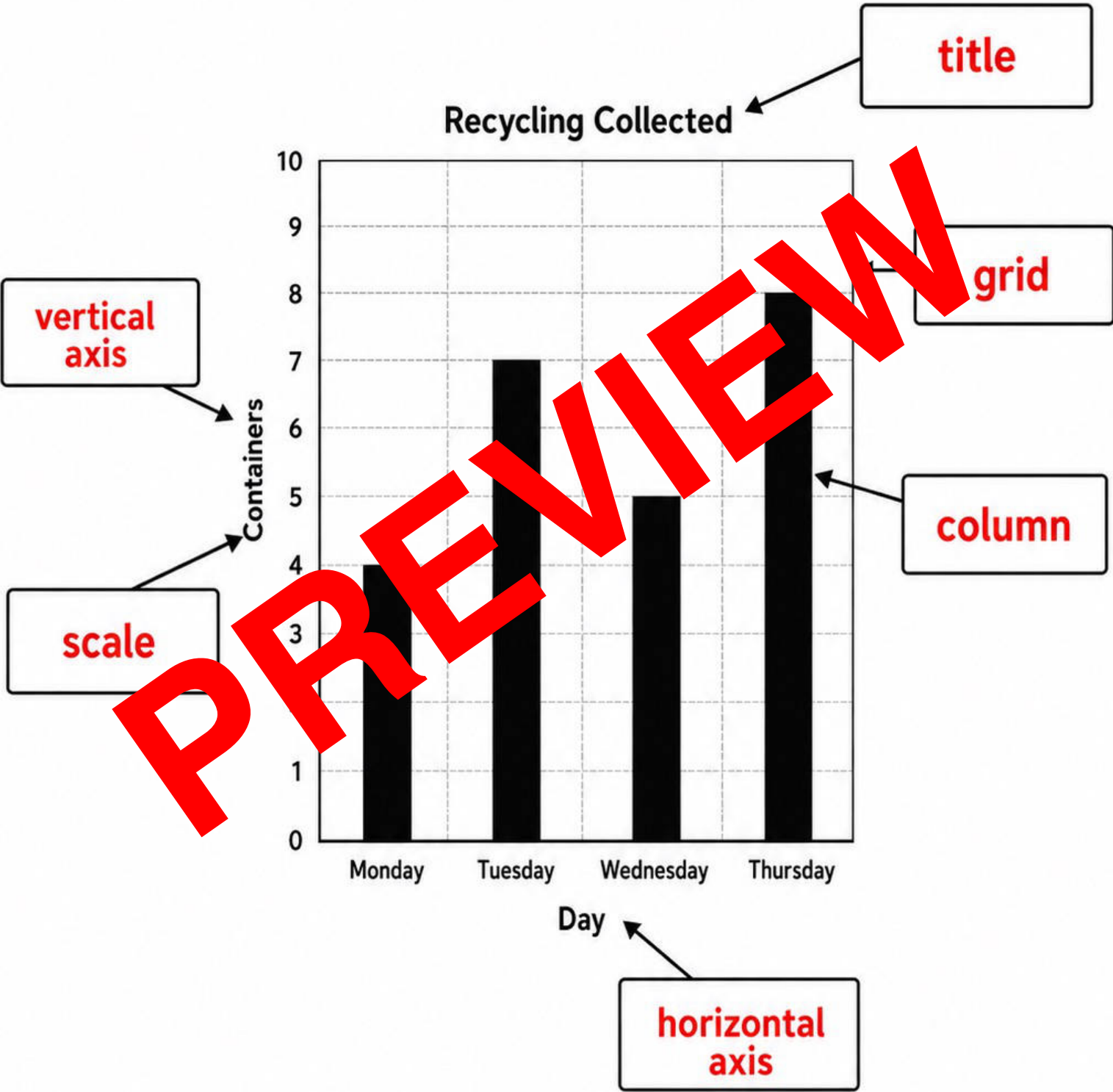
Use these labels: title, horizontal axis, vertical axis, scale, column, grid.



ANSWERS

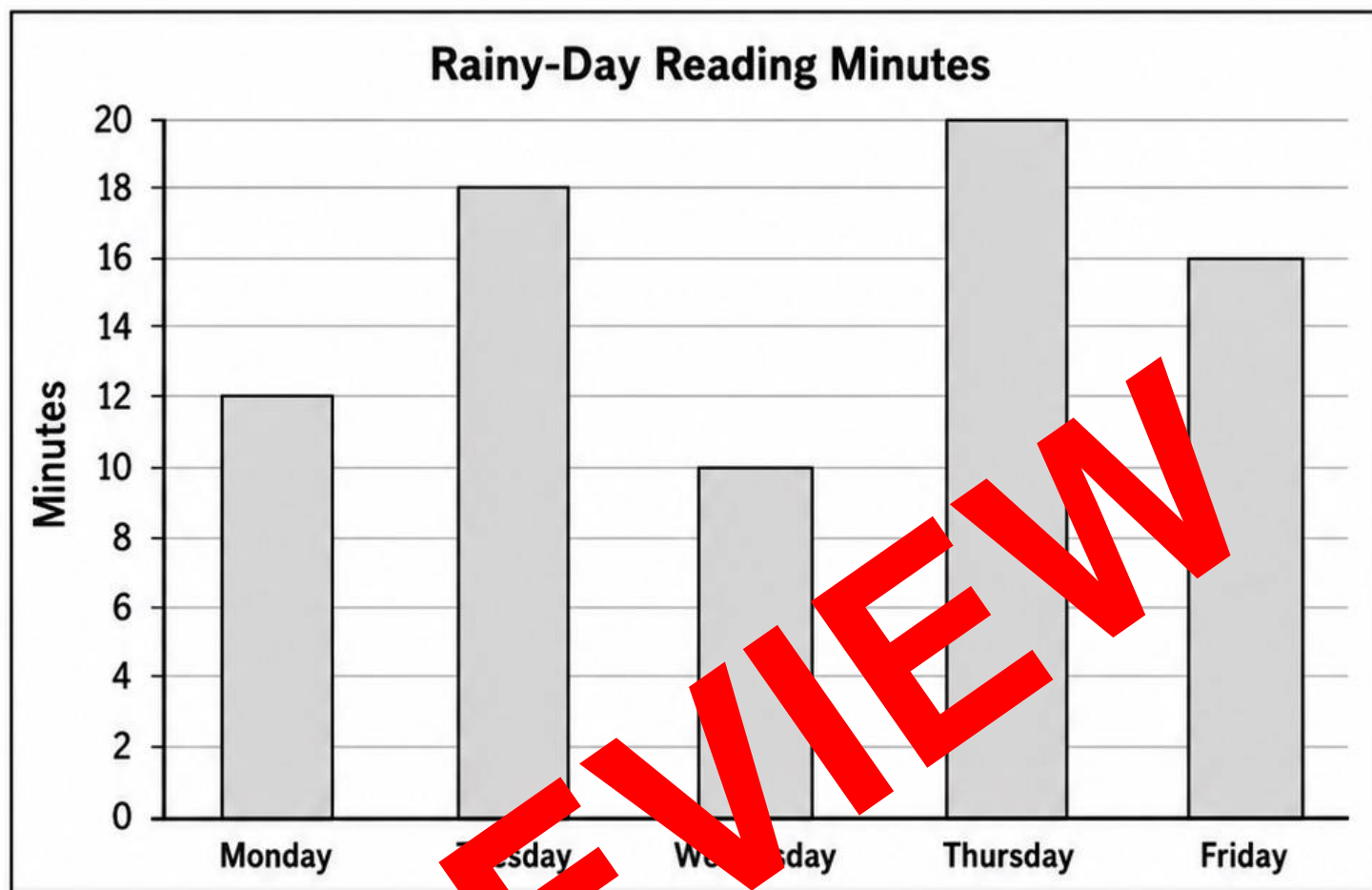
Parts of a Column Graph

Use these labels: title, horizontal axis, vertical axis, scale, column, grid.



Name: _____

Reading Column Graphs - Page 1



- ① Which day had the most reading?

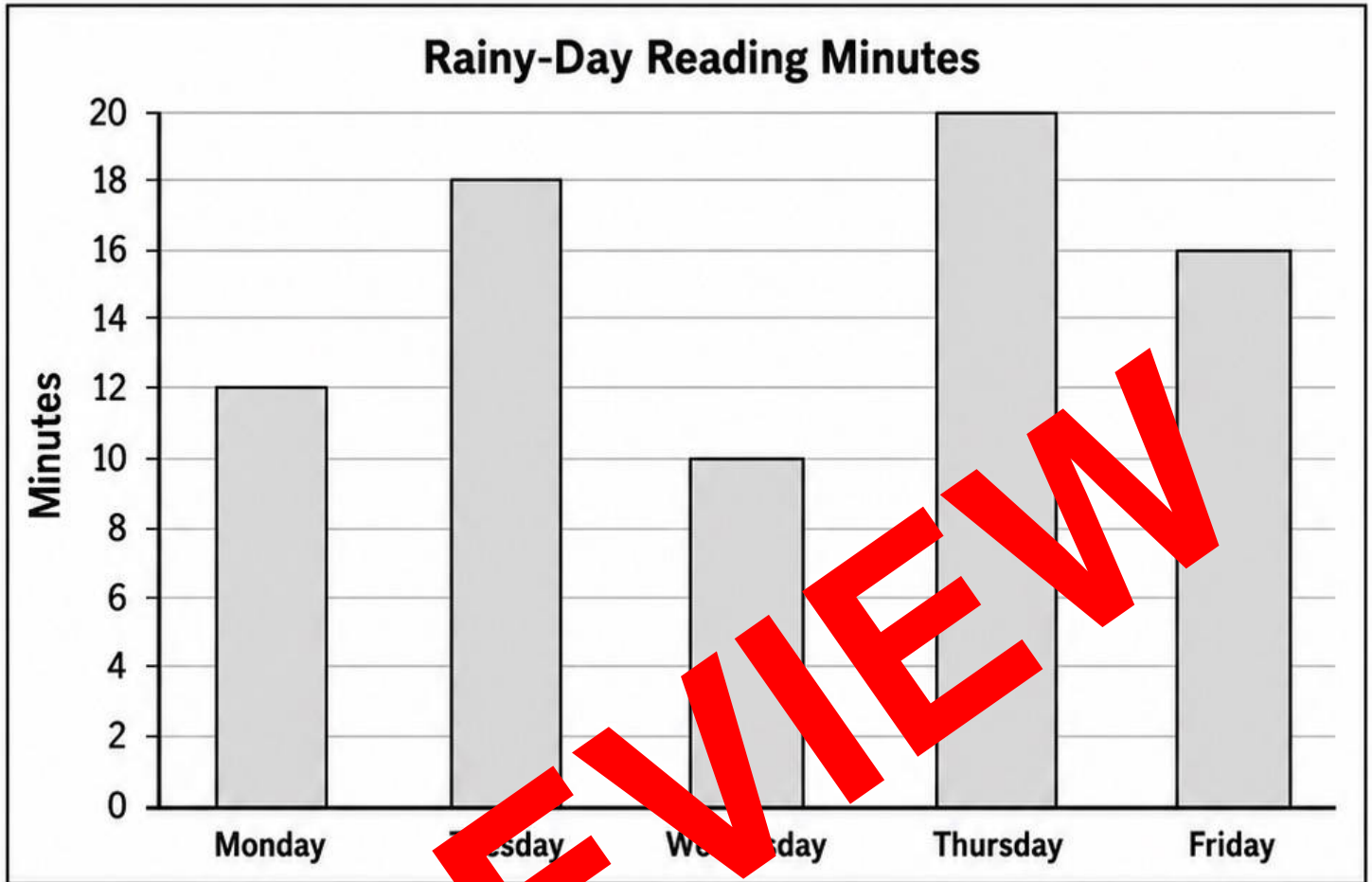
- ② Which day had the least?

- ③ What is the difference between Thursday and Wednesday?

- ④ What is the total for Monday and Friday?

- ⑤ Write one accurate statement about the graph.

Reading Column Graphs - Page 1

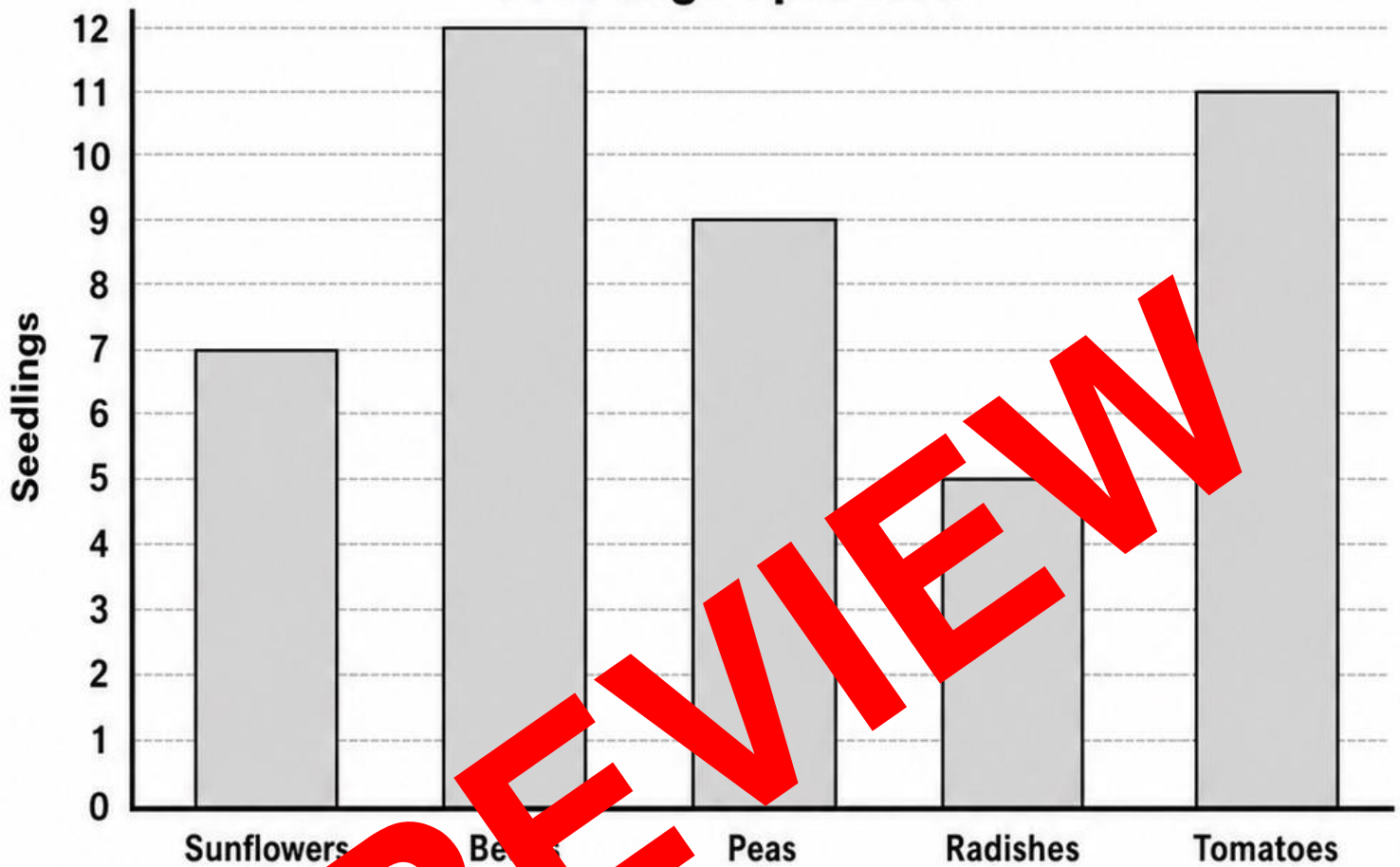


- ① Which day had the most reading?
Thursday
- ② Which day had the least?
Wednesday
- ③ What is the difference between Thursday and Wednesday?
10 minutes
- ④ What is the total for Monday and Friday?
28 minutes
- ⑤ Write one accurate statement about the graph.
Example: Thursday had the most reading time with 20 minutes.

Name: _____

Reading Column Graphs - Page 2

Seedlings Sprouted

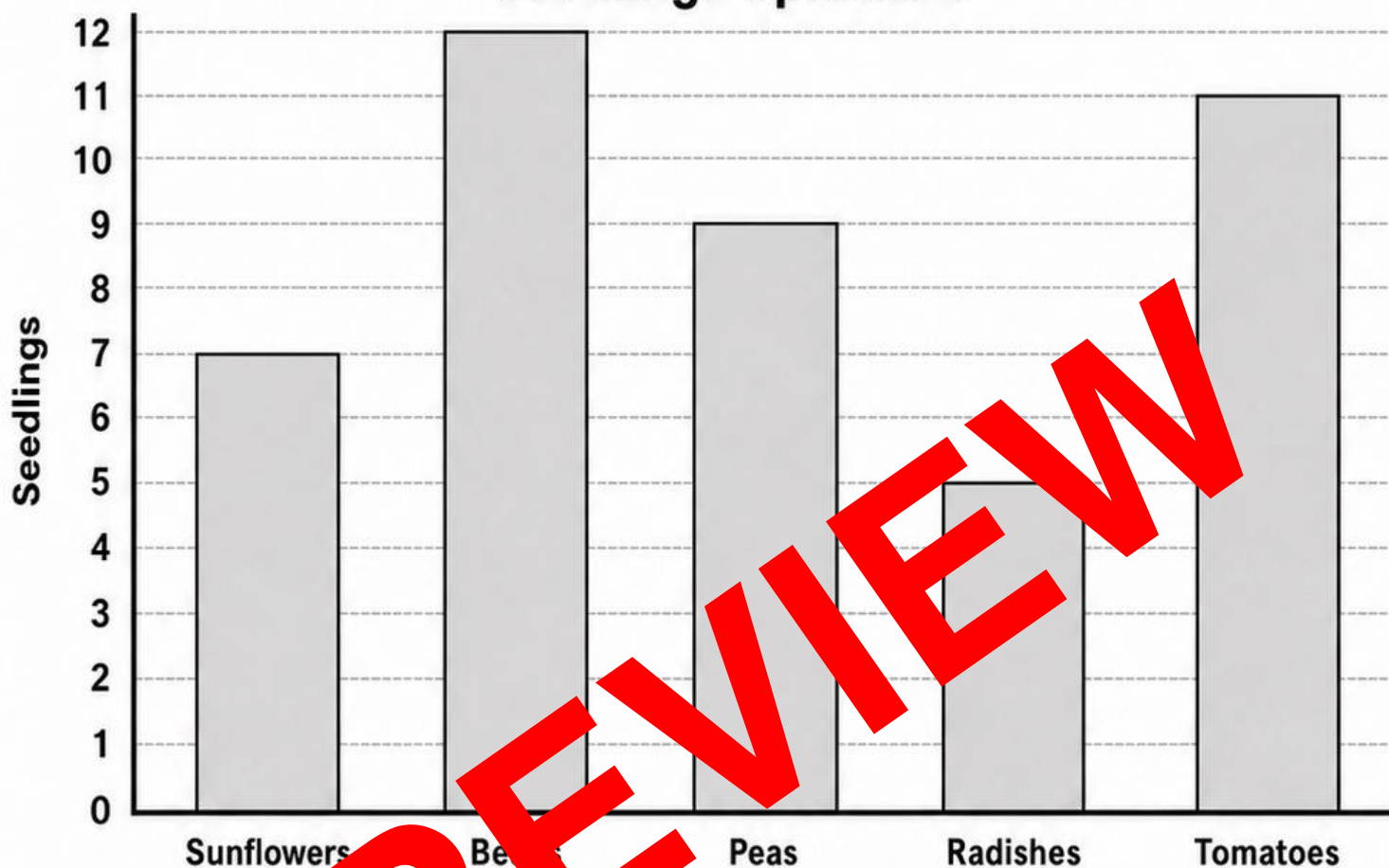


- 1 Which category had the most seedlings? _____
- 2 How many more beans than radishes? _____
- 3 What is the total for beans and tomatoes? _____
- 4 Which two categories differ by 2? _____
- 5 Put the categories in order from least to greatest.

ANSWERS

Reading Column Graphs - Page 2

Seedlings Sprouted



- 1 Which category had the most seedlings? Peas
- 2 How many more beans than radishes? 7 seedlings
- 3 What is the total for beans and tomatoes? 23 seedlings
- 4 Which two categories differ by 2? Peas and Tomatoes
- 5 Put the categories in order from least to greatest. Radishes, Sunflowers, Peas, Tomatoes, Beans

Name: _____

Building Column Graphs - Page 1

Recess Activities	
Soccer	9
Skipping	5
Handball	12
Drawing	4

Create a complete column graph from the table.



Graph title: _____

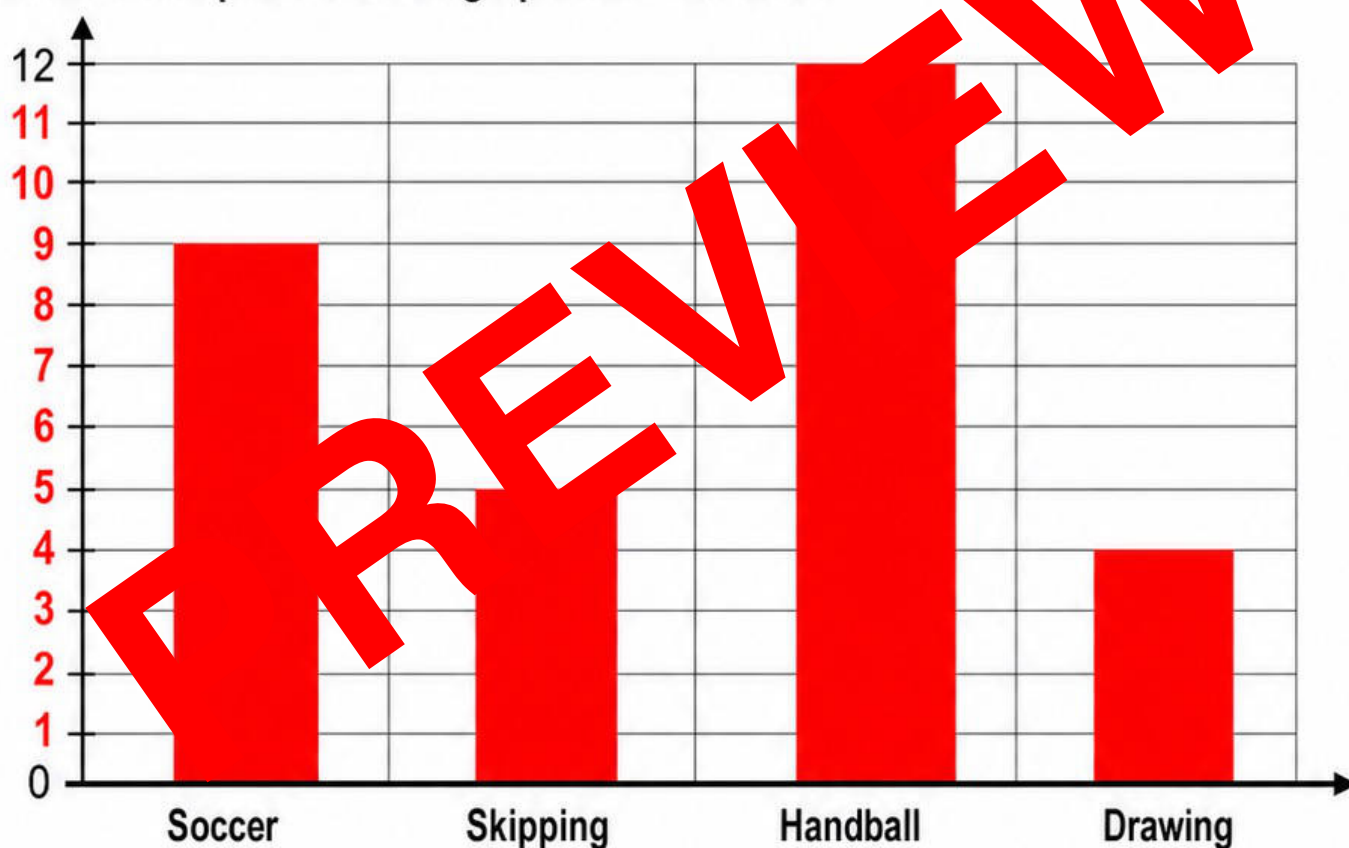
Vertical-axis label: _____

- ☐ title
- ☐ axis labels
- ☐ even scale
- ☐ accurate columns

Building Column Graphs - Page 1

Recess Activities	
Soccer	9
Skipping	5
Handball	12
Drawing	4

Create a complete column graph from the table.



Graph title: Favourite Recess Activities

Vertical-axis label: Students

- ☒ title
- ☒ axis labels
- ☒ even scale
- ☒ accurate columns

Name: _____

Building Column Graphs - Page 2

Trees Planted	
Banksia	6
Wattle	12
Gum	18
Bottlebrush	9

Choose and label an efficient even scale, then draw the columns.

Graph title: _____

Vertical-axis label: _____



Why is your scale efficient?

Write one comparison statement.

Building Column Graphs - Page 2

Trees Planted	
Banksia	6
Wattle	12
Gum	18
Bottlebrush	9

Choose and label an efficient even scale, then draw the columns.

Graph title: Trees Planted

Vertical-axis label: Number of trees



Why is your scale efficient?

Intervals of 3 reach every value without wasting space.

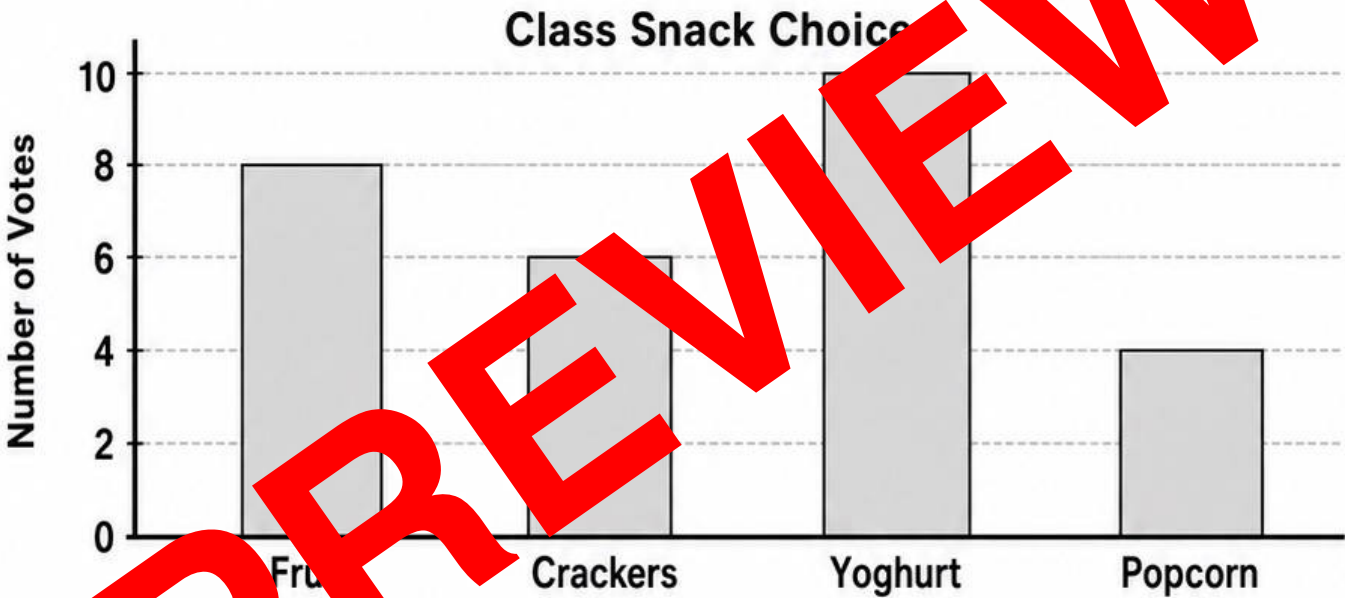
Write one comparison statement.

Gum trees were planted most, with 18 trees.

Compare the Representations - Page 1

Class Snack Choice	
Fruit	○ ○ ○ ○
Crackers	○ ○ ○
Yoghurt	○ ○ ○ ○ ○
Popcorn	○ ○

1 symbol = 2 votes



- 1 How are the graphs alike?

- 2 Which graph makes exact differences quickest to see?

- 3 Which category was most popular?

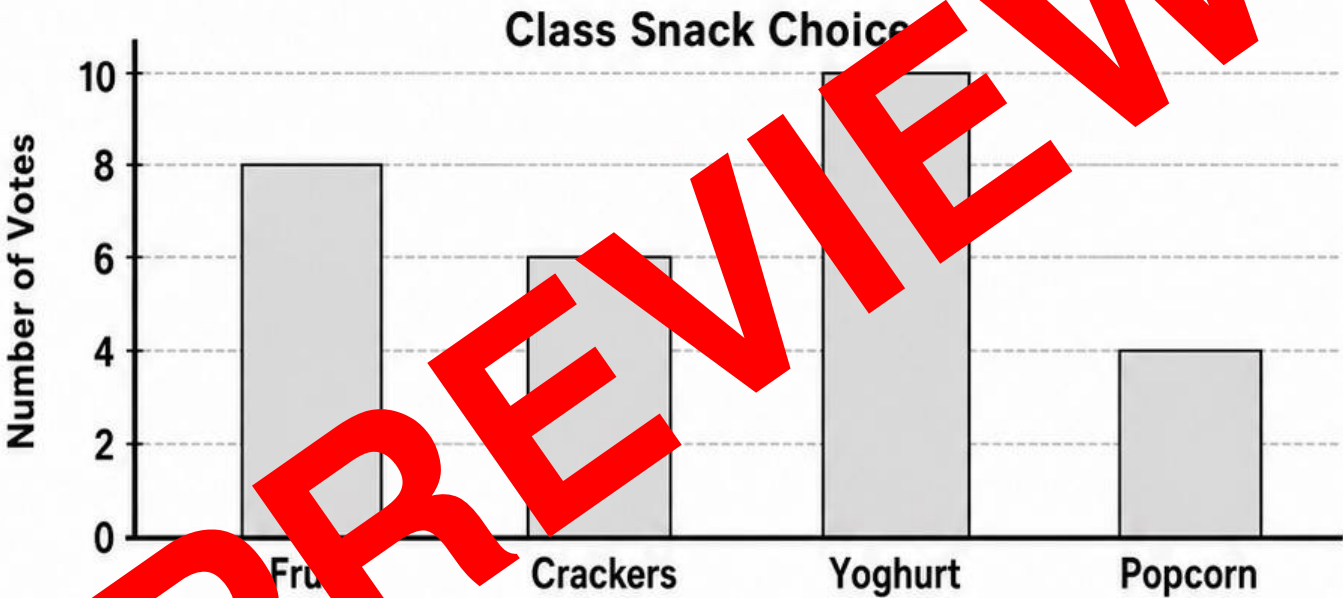
- 4 How many more votes for yoghurt than popcorn?

- 5 Which graph would you choose and why?

Compare the Representations - Page 1

Class Snack Choice	
Fruit	○ ○ ○ ○
Crackers	○ ○ ○
Yoghurt	○ ○ ○ ○ ○
Popcorn	○ ○

1 symbol = 2 votes



- 1

How are the graphs alike?
They show the same categories and frequencies.
- 2

Which graph makes exact differences quickest to see?
Column graph
- 3

Which category was most popular?
Yoghurt
- 4

How many more votes for yoghurt than popcorn?
6 votes
- 5

Which graph would you choose and why?
Example: column graph, because exact differences are quick to compare.

Name: _____

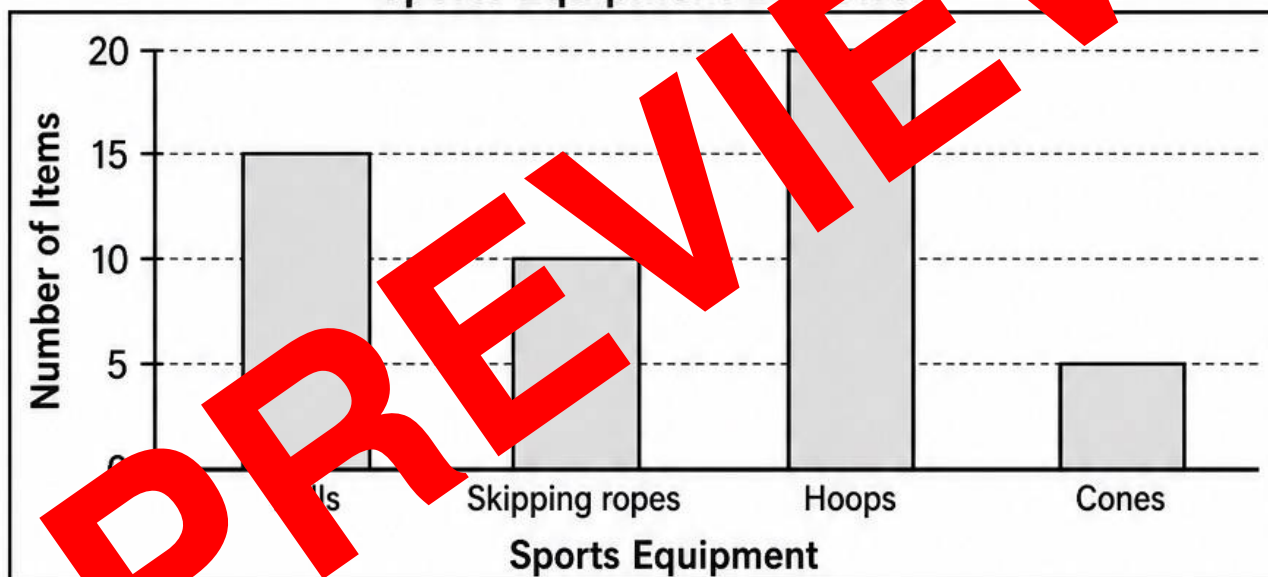
Compare the Representations - Page 2

Sports Equipment Borrowed

Balls	  
Skipping ropes	 
Hoops	   
Cones	

1 symbol = 5 items

Sports Equipment Borrowed



- 1 Which graph uses a key?

- 2 Which graph uses a numbered scale?

- 3 What is the difference between hoops and cones?

- 4 What is the total number of items?

- 5 Write one conclusion supported by both graphs.

ANSWERS

Compare the Representations - Page 2

Sports Equipment Borrowed

Balls	  
Skipping ropes	 
Hoops	   
Cones	

1 symbol = 5 items

Sports Equipment Borrowed



- 1 Which graph uses a key?

Picture graph

- 2 Which graph uses a numbered scale?

Column graph

- 3 What is the difference between hoops and cones?

15 items

- 4 What is the total number of items?

50 items

- 5 Write one conclusion supported by both graphs.

Example: Hoops were borrowed most often, with 20 items.

Name: _____

Spreadsheet Data Challenge - Page 1

Activity	Frequency
Reading	7
Drawing	5
Sport	12
Games	9
Music	3

- 1 Enter the headings and data in a spreadsheet.
- 2 Select the complete table.
- 3 Insert a column graph.
- 4 Add the title 'Your Free-Time Activities'.
- 5 Label the axes Activity and Students.
- 6 Check every value and save your file.

My file name:

One statement my graph shows:

Spreadsheet Data Challenge - Page 1

Activity	Frequency
Reading	7
Drawing	5
Sport	12
Games	9
Music	3

- 1 Enter the headings and data in a spreadsheet.
- 2 Select the complete table.
- 3 Insert a column graph.
- 4 Add the title 'Favourite Free-Time Activities'.
- 5 Label the axes Activity and Students.
- 6 Check every value and save your file.



My file name:

favourite-free-time-data

One statement my graph shows:

Sport was most common, with 12 responses.

Name: _____

Spreadsheet Data Challenge - Page 2

	A	B
1	Transport	Total
2	Bus	6
3	Walk	9
4	Car	7
5	Bike	4

1 Which cell contains Walk?

2 Which cell contains the bike total?

3 What cell contains the four categories and totals?

4 Which cell contains the Total heading?

5 Which graph would best compare these frequencies?

6 What is the total number of responses?

Spreadsheet Data Challenge - Page 2

	A	B
1	Transport	Total
2	Bus	6
3	Walk	9
4	Car	7
5	Bike	4

1 Which cell contains Walk?

A3

2 Which cell contains the bike total?

B5

3 What cell contains the four categories and totals?

A2:B5

4 Which cell contains the Total heading?

B1

5 Which graph would best compare these frequencies?

Column graph

6 What is the total number of responses?

26 responses

Name: _____

Community Garden Data Investigation - Page 1

What should the school community garden plant more of?

Tomatoes, Herbs, Strawberries, Tomatoes, Flowers, Herbs, Tomatoes, Strawberries, Herbs, Tomatoes, Strawberries, Flowers, Tomatoes, Herbs, Strawberries, Tomatoes, Herbs, Strawberries, Tomatoes, Flowers, Strawberries, Herbs, Tomatoes, Strawberries

Category	Tally	Frequency
Tomatoes		
Herbs		
Strawberries		
Flowers		

- 1 Which category was chosen most?

- 2 Which category was chosen least?

- 3 How many responses were collected altogether?

- 4 What is the difference between the most and least popular categories?

Community Garden Data Investigation - Page 1

What should the school community garden plant more of?

Tomatoes, Herbs, Strawberries, Tomatoes, Flowers, Herbs, Tomatoes, Strawberries, Herbs, Tomatoes, Strawberries, Flowers, Tomatoes, Herbs, Strawberries, Tomatoes, Herbs, Strawberries, Tomatoes, Flowers, Strawberries, Herbs, Tomatoes, Strawberries

Category	Tally	Frequency
Tomatoes		8
Herbs		6
Strawberries		7
Flowers		3

- 1 Which category was chosen most?
Tomatoes
- 2 Which category was chosen least?
Flowers
- 3 How many responses were collected altogether?
24 responses
- 4 What is the difference between the most and least popular categories?
5 responses

Name: _____

Community Garden Data Investigation - Page 2

Use your completed frequency table from Page 1.

Choose a picture graph or a column graph. Add a clear title, labels and an accurate key or even scale.



Tomatoes

Strawberries

Flowers

1 What should the garden plant more of?

2 Give one number from your graph as evidence.

3 Compare your recommendation with Flowers.

4 Name one check that proves your graph is accurate.

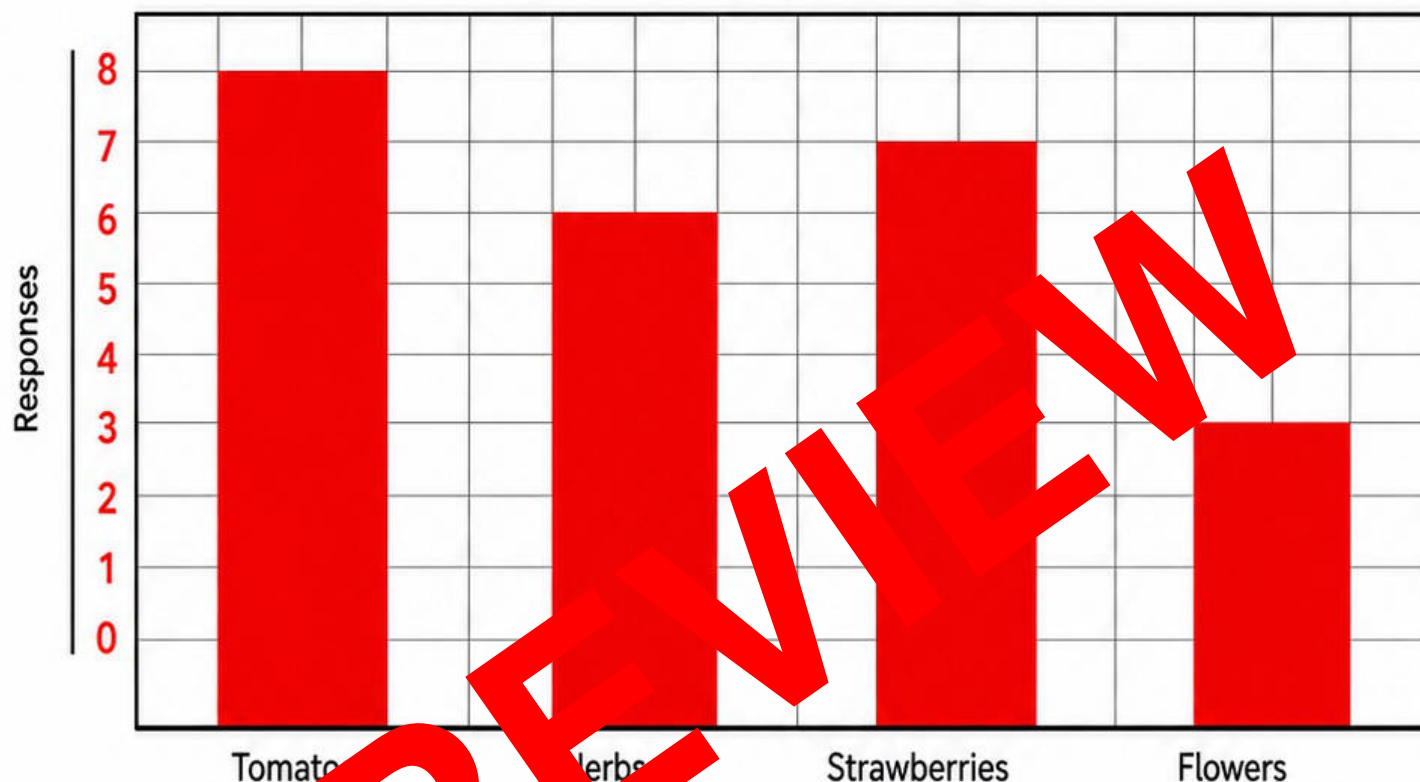
ANSWERS _____

Community Garden Data Investigation - Page 2

Use your completed frequency table from Page 1.

Choose a picture graph or a column graph. Add a clear title, labels and an accurate key or even scale.

Community Garden Choices



1 What should the garden plant more of?

Tomatoes

2 Give one number from your graph as evidence.

Tomatoes received 8 responses.

3 Compare your recommendation with Flowers.

Tomatoes received 5 more responses than Flowers.

4 Name one check that proves your graph is accurate.

The column heights match the frequency table.

Collecting and Representing Data Rubric

Student: _____ Date: _____

Criteria	BEGINNING	DEVELOPING	ACHIEVING	CONFIDENT	EXCEEDING
Recording data	Records few responses accurately.	Records some responses accurately; several errors.	Records all responses with mostly accurate tallies and totals.	Records all data accurately and checks totals.	Records, verifies and organises data independently.
Graph features	Graph is incomplete.	Includes some of the required features.	Includes title, labels and categories.	Includes all features in a clear layout.	Selects and applies features precisely for purpose.
Key or scale	Key or scale is missing or inaccurate.	Key or scale works for some values.	Uses an appropriate, mostly accurate key or scale.	Uses an efficient, even and accurate key or scale.	Justifies and checks an efficient key or scale.
Interpretation	Gives unsupported or inaccurate statements.	Identifies simple facts with limited evidence.	Gives accurate, most, and some evidence to support statements.	Compares values and supports conclusions with evidence.	Draws insightful conclusions and explains patterns.
Communication	Work is difficult to follow or incomplete.	Work is partly clear and complete.	Work is clear, complete and uses correct terms.	Work is precise, organised and easy to verify.	Communicates reasoning fluently and evaluates the graph choice.

Teacher comment:

Collecting and Representing Data



We use data to answer questions

Data is information we collect about the world around us.

A question of interest gives the investigation a purpose.

Categorical data names a group, such as a favourite fruit.

Discrete numerical data is counted, such as the number of books borrowed.



A data investigation follows six steps

1. Ask a clear question.
2. Collect accurate data.
3. Record the responses.
4. Represent the data.
5. Interpret what the graph shows.
6. Draw a conclusion supported by evidence.



A fair question has clear choices

Question: Which playground area should be improved first?

Clear choices: climbing area, ball court, quiet space or garden.

Ask every person the same question.

Record one response for each person.



Tallies keep raw responses organised

Write one tally mark for every response.

Group the fifth tally mark as the first four.

Count the tally groups carefully when the survey is finished.

Tally marks us check that no response is missed or counted twice.



A frequency table turns tallies into totals

Garden choice: Herbs 6, Tomatoes 8, Strawberries 7, Flowers 3.

The category tells us what was counted.

The frequency tells us how many responses were recorded.

Check: $6 + 8 + 7 + 3 = 24$ responses.



Picture graphs use symbols and a key

Each symbol represents a number of items.

If one book symbol represents 4 books, half a symbol represents 2 books.

Read the title, categories and key before counting symbols.

Choose a key that fits every value in the data set.



Read every part before answering

Picture graph key: one paw represents 2 pets.

Dogs: 5 paws = 10 pets.

Birds: 4 paws = 8 pets.

Cats: 3 paws = 6 pets.

Rabbits: 2 paws = 4 pets.

Picture graph key changes symbols into frequencies.



Column graphs compare frequencies quickly

A clear column graph needs:

- a title
- labelled horizontal and vertical axes
- categories
- a scale in equal intervals
- columns of equal width
- accurate column heights



A useful scale uses equal intervals

Data values: 6, 12, 18 and 9.

A scale of 0, 3, 6, 9, 12, 15, 18 is efficient and even.

Unequal gaps in the scale can make a graph misleading.

The top of each column must match its exact value.



One table can become different graphs

Snack choices: Fruit 8, Crackers 6, 5, 4, 3, 2, 1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

A picture graph can make the data visually memorable.

A column graph can make exact comparisons quick.

Other graphs must show the same frequencies.



Choose the clearest representation

Use a picture graph when a symbol can make data easy to scan.

Use a column graph when exact values and differences are important.

Use a table when readers need the original totals.

Best choice depends on the audience and purpose.



Interpret most, least and difference

Rainy-day reading minutes

Monday 12, Tuesday 18, Wednesday 10, Thursday 20, Friday 16.

on Thursday, 20 minutes.

Least: Wednesday, 10 minutes.

Difference: $20 - 10 = 10$ minutes.



Totals and combined categories and meaning

To find a total, add every frequency.

To compare two categories, subtract the smaller value from the larger value.

To combine categories, add only the named frequencies.

Answers include the unit in the answer.



Support every statement with evidence

Weak statement: Tomatoes were popular.

Strong statement: Tomatoes were the most popular choice with 8 responses, which was 5 more than flowers.

Name, category, value and comparison shown by the data.



Check a graph before trusting it

As

- Does the graph have a clear title?
- Are the axes and categories labelled?
- Are the scale intervals equal?
- Do the bar heights match the data?
- Does the picture-graph key work for every symbol?



Spreadsheets make neat digital graphs

1. Enter category headings and frequencies.
2. Select the complete data table.
3. Insert a column graph.
4. Add a clear title and axis labels.
5. Check the scale and every value.
6. Save the file with a useful name.



Guided investigation: travel to school

Question: How do students in our class usually travel to school?

Possible categories: walk, bike, scooter, car and bus.

Collect the response from each student.

Create a table and a graph and write two evidence-based statements.

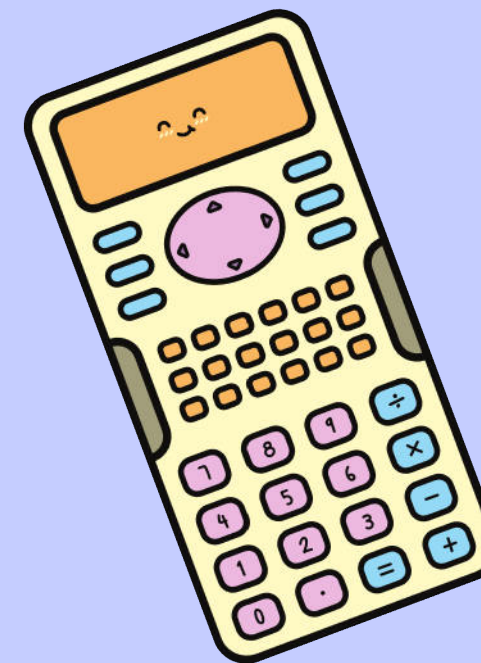
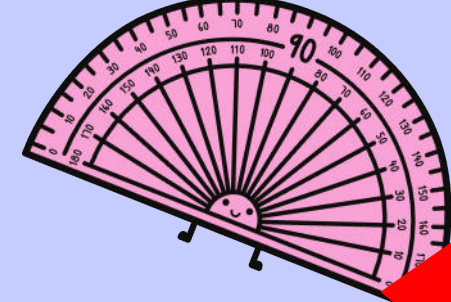
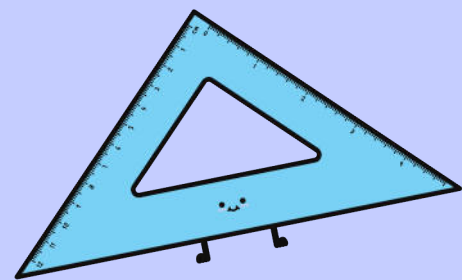
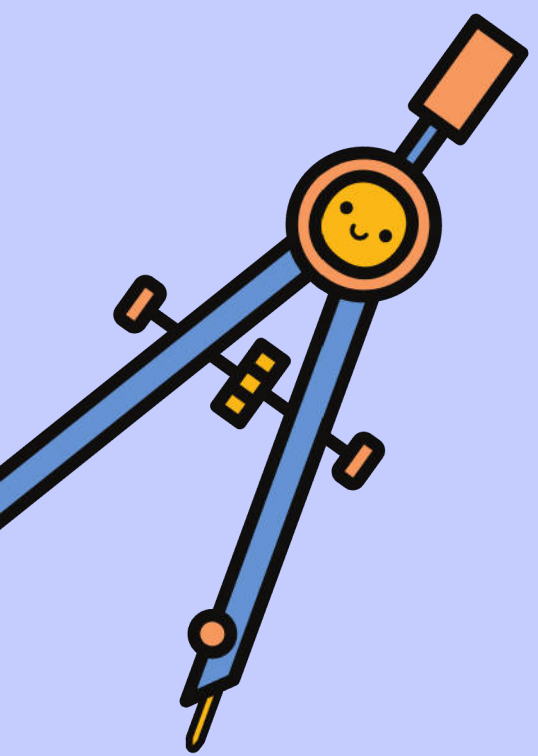


Review the full investigation

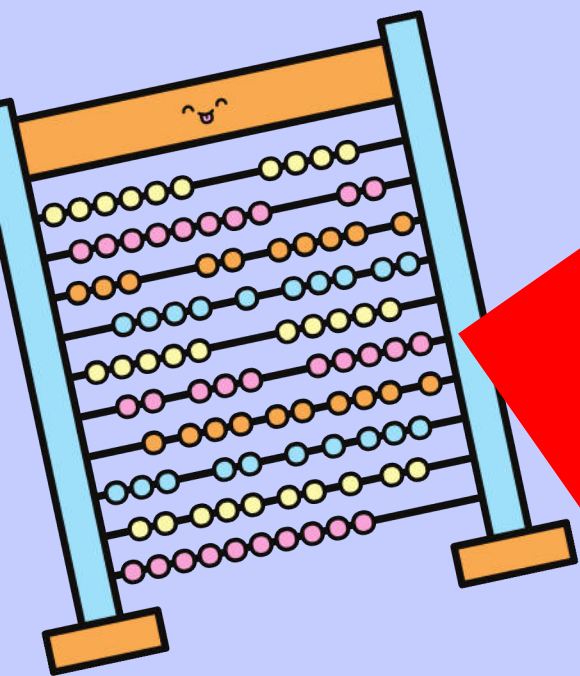
Can you:

- ask a clear question?
- record responses with tables and totals?
- create a picture graph or column graph?
- use an appropriate key or scale?
- compare two representations?
- support a conclusion with data?

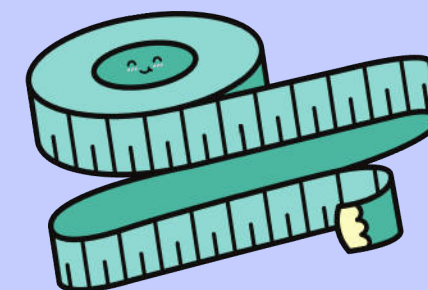
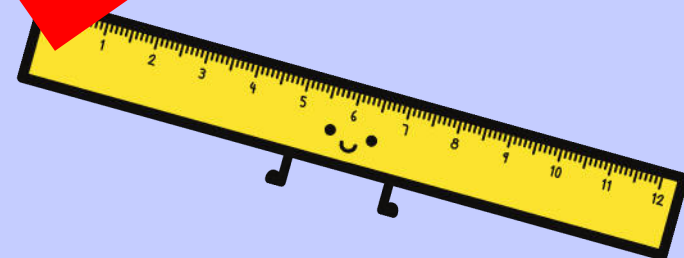




Well Done!



PREF



Collecting and Representing Data Quiz



Question 1

Which feature tells what each picture caption and number represents?

- A. The title
- B. The key
- C. The border
- D. The column width



Answer 1

B. The key tells what each symbol represents.



Question 2

True or false?

If one star represents 4 votes, half a star represents 2 votes.



Answer 2

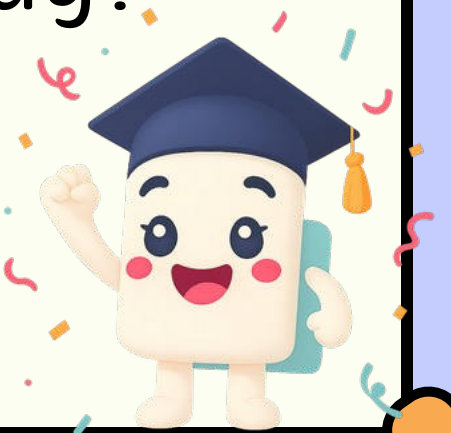
True Half of is 2.



Question 3

A column graph shows Monday 7 books, Tuesday 9 books and Wednesday 4 books.

How many more books were read on Tuesday than Wednesday?



Answer 3

Book Calculator $9 - 4 = 5$.



Question 11

Which representation is usually best for comparing exact frequencies across several categories?

- A. A column graph
- B. A story
- C. A map
- D. A number line



Answer 4

A. A column graph makes exact category comparisons clear.



Question 5

True or false?

A column-graph should use uneven intervals if the columns look tidy.



Answer 5

False. Scale intervals must be equal so the graph is accurate.



Question 6

Survey results are: Wheel 8, Car 11, Bus 5 and Bike 6.

What is the total number of responses?



Answer 6

30 responses. Calculate $11 + 5 + 6 = 30$.



Question 7

What should happen first in a data investigation?

- A. Colour the graph
- B. Write a conclusion
- C. Ask a clear question
- D. Choose the tallest column



Answer 7

C. Start by asking a clear question of interest.



Question 8

True or false?

The height of a column could match the category's frequency on the y-axis scale.



Answer 8

True. The column height must show the exact frequency.



Question a

Data shows Herbs 6, Tomatoes 8, Strawberries 7 and Flowers 3.

Which statement is supported by the data.



Answer d

Example: Tomatoes were the most popular choice with 8 responses.

Other accurate evidence-based statements are acceptable.



Question 10

Which spreadsheet selection contains every category and frequency?

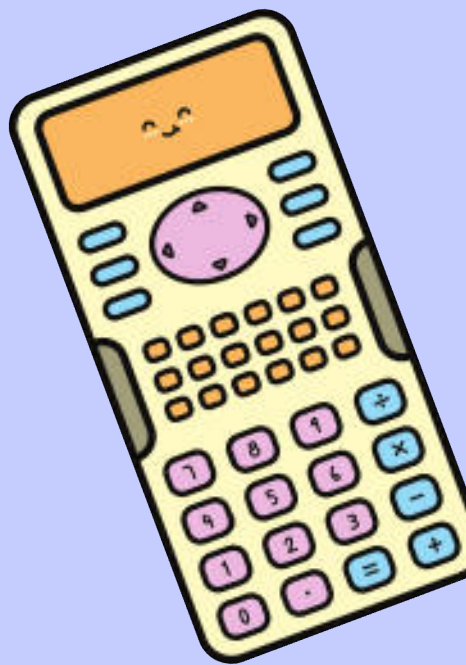
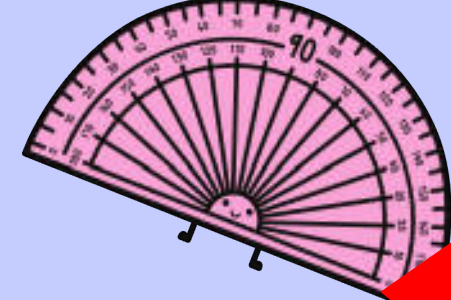
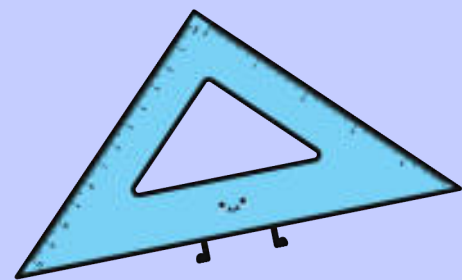
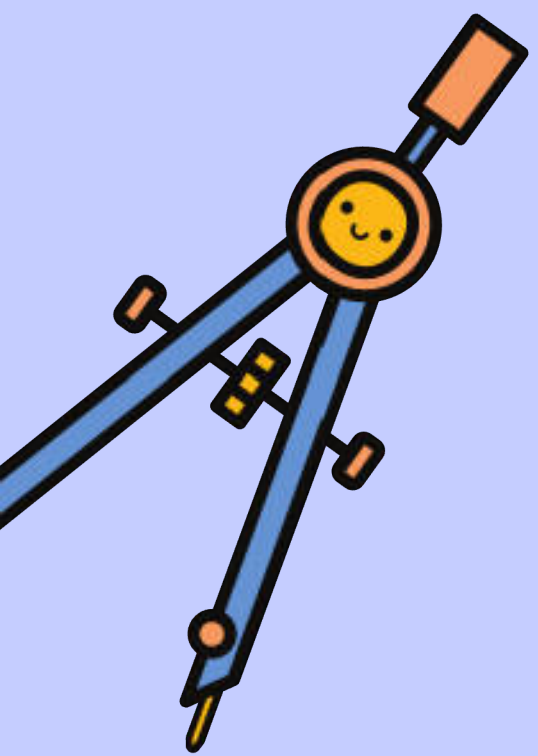
- A. Only the first cell
- B. Only the largest number
- C. The complete two-column data table
- D. One empty row



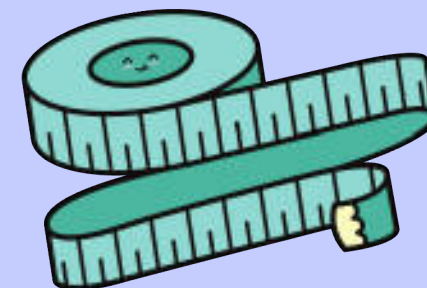
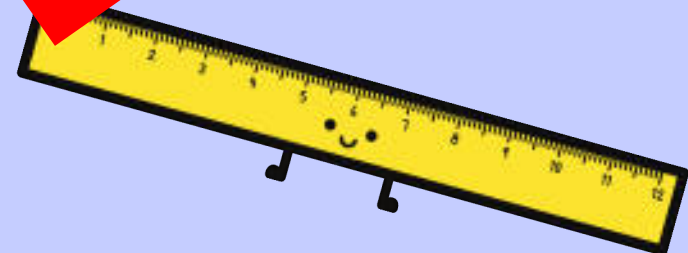
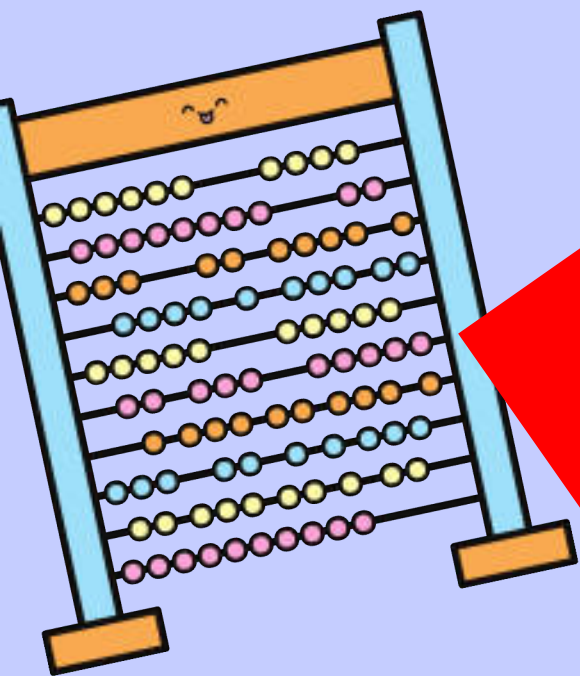
Answer 10

C. Select the complete two-column data table before inserting the graph.





Well Done!

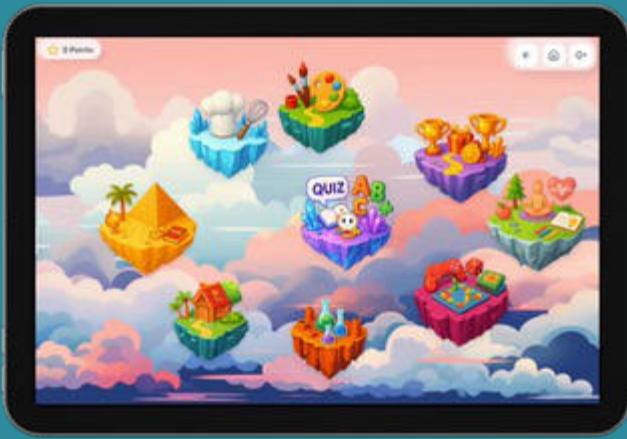


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Dealing with Data - Year 3

Table of Contents	
Presentation: Dealing with Data	
Display: Data Detective Posters	
Activity: Survey Studio	
Game: Roll, Spin and Record	
Activity: Data Display Puzzles	
Worksheet 1: What Is the Data?	
Worksheet 2: Collect and Categorise	
Worksheet 3: Tables and Tallies	
Worksheet 4: Read and Compare Graphs	
Worksheet 5: Digital Data Sorting	
Quiz: Dealing with Data	
Assessment: Data Investigation Challenge	
Rubric: Dealing with Data Rubric	



DATA INVESTIGATION CYCLE

1. ASK

Choose a clear question.



2. COLLECT

Gather data fairly.



3. ORGANISE

Use tally marks or a table.



Item	Count
	7
	12
	5

4. REPRESENT

Make a suitable display.



5. INTERPRET

Use the data to answer the question.



TYPES OF DATA

1 NUMERICAL

numbers or measurements

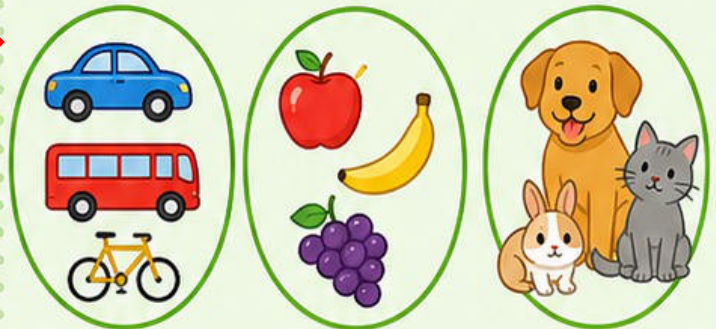
Examples: books read, height, temperature



2 CATEGORICAL

groups or levels

Examples: transport type, favourite fruit, pet



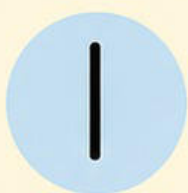
3 DESCRIPTIVE

words or observations

Examples: weather notes, colour, behaviour



TABLES AND TALLY MARKS



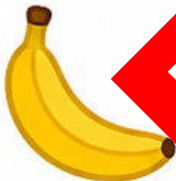
A tally mark records one response.



Group the first four mark across the first four.



CLASS FRUIT SURVEY

Fruit	Tally	Total
 Apple		7
 Banana		5
 Orange		3

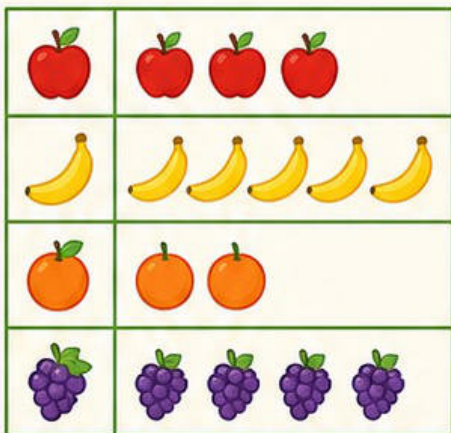


Check: the totals should match the number surveyed.

CHOOSE AND READ A DISPLAY

PICTOGRAPH

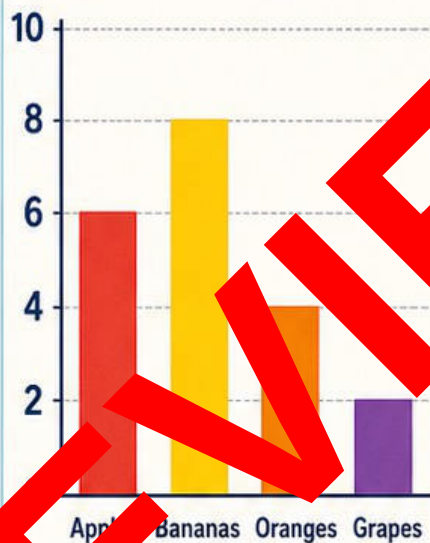
Uses pictures and a key.



 = 1 fruit

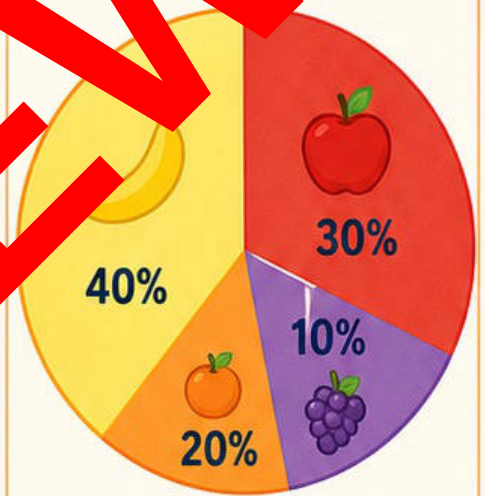
COLUMN GRAPH

Compares category amounts.



PIE CHART

Shows parts of a whole.



BEFORE YOU INTERPRET



Read the title.



Check the labels.



Notice the scale.



Use the key.



SURVEY STUDIO



CARD 1

Which playground zone should we improve first?



Oval



Court



Garden



Quiet Area

CARD 2

Which lunch fruit would you choose?



Apple



Banana



Orange



Pear

CARD 3

How do you usually travel to school?



Walk



Bike or Scooter



Car



Bus

CARD 4

Which reading genre should our class choose next?



Adventure



Humour



Mystery



Information

Choose one card or write your own clear question.





SURVEY STUDIO



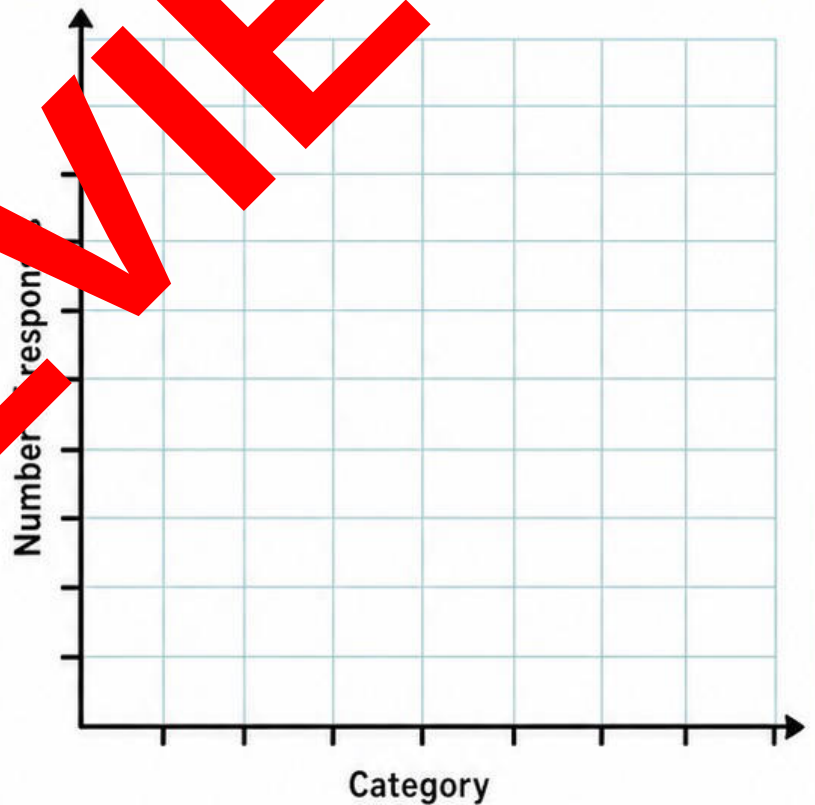
Question: _____

Prediction: _____

Sample group: _____

Category	Tally	Total

MAKE A COLOUR GRAPH



The most common response was _____



The least common response was _____



I learned that _____

ROLL AND RECORD

Name: _____

HOW TO PLAY

1. Roll a fair six-sided die 30 times.
2. Record each result with a tally mark.
3. Add each total.
4. Answer the questions.



Result	Tally	Total
1		
2		
3		
4		
5		
6		



Which result occurred most?



Which result occurred least?

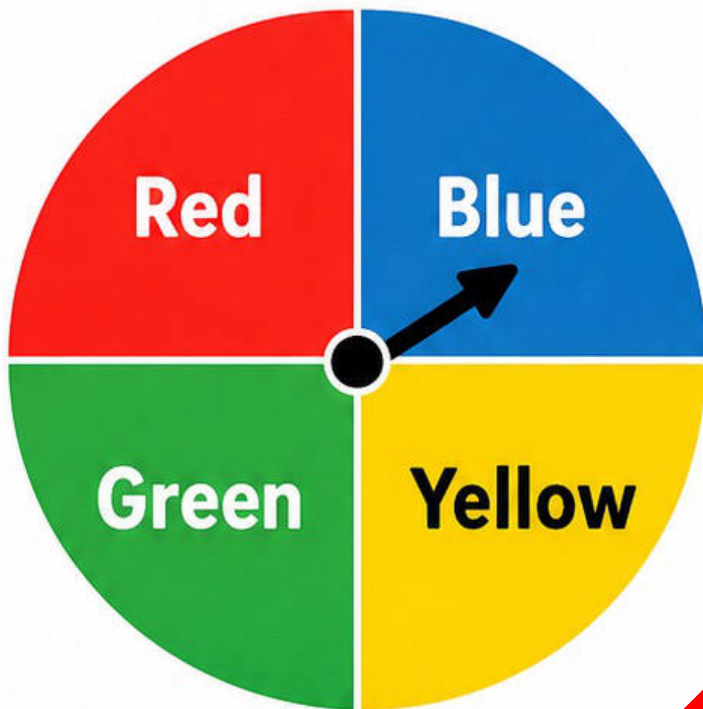


What was the difference?



Were the results exactly equal? Why or why not?

SPIN AND COMPARE



HOW TO PLAY

1. Each player spins 20 times.
.....
2. Record every colour spun
with a tally mark.
.....
3. Add the totals and compare.

PLAYER 1

Colour	Tally	Total
 Red		
 Blue		
 Green		
 Yellow		

PLAYER 2

Colour	Tally	Total
 Red		
 Blue		
 Green		
 Yellow		

- 1 Which colour occurred most for Player 1? _____
- 2 Which colour occurred most for Player 2? _____
- 3 What was the biggest difference? _____
- 4 Did the two sets of results match exactly? Explain.

DATA DISPLAY PUZZLES

PUZZLE 1

PICNIC DRINKS



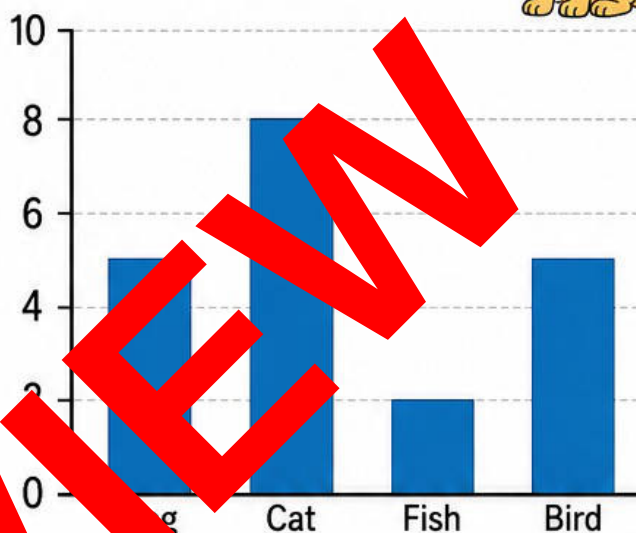
Drink	Total
 Water	6
 Juice	9
 Milk	3

Which drink was chosen by 3 students?

Answer: _____

PUZZLE 2

CLASS PETS



Which two categories are equal?

Answer: _____

PUZZLE 3

TRAVEL TO SCHOOL

KEY: 1 symbol = 1 student

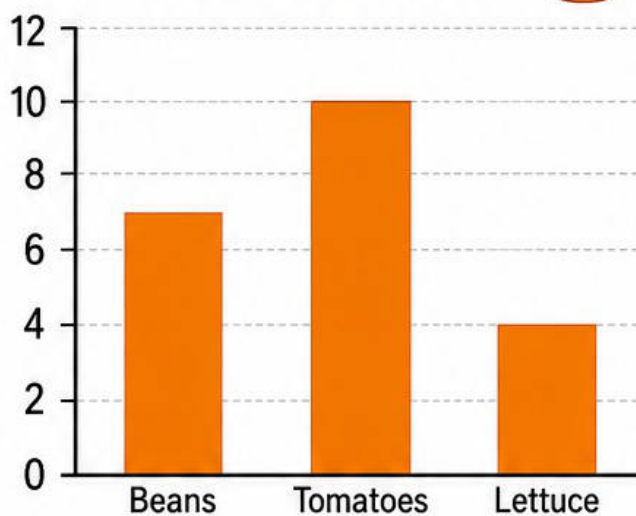
Walk 	  
Car 	   
Bus 	 

How many students travelled by bus?

Answer: _____

PUZZLE 4

GARDEN PLANTS



How many more tomatoes than lettuce?

Answer: _____

PUZZLE 1

PICNIC DRINKS

Drink	Total
Water	6
Juice	9
Milk	3

Which drink was chosen by 3 students?

Answer: Milk

PUZZLE 2

CLASS PETS

Which two categories are equal?

Answer: Dog and Bird

PUZZLE 3

TRAVEL TO SCHOOL

KEY: 1 symbol = 2 students

Walk 	
Car 	
Bus 	

How many students travelled by bus?

Answer: 4 students

PUZZLE 4

GARDEN PLANTS

How many more tomatoes than lettuce?

Answer: 6

WHAT IS THE DATA?

PAGE 1: SORT THE EVIDENCE



Name: _____



Write **N** for numerical, **C** for categorical or **D** for descriptive.

Evidence	Type
1. Number of pets in each home	
2. Favourite lunch choice	
3. Notes about today's weather	
4. Minutes each student read	
5. Type of shoes worn	
6. Height of each seedling in centimetres	
7. Notes about playground behaviour	
8. Favourite book genre	

WHAT IS THE DATA?

PAGE 1: SORT THE EVIDENCE



ANSWERS _____



Write **N** for numerical, **C** for categorical or **D** for descriptive.

Evidence	Type
1. Number of pets in each home	N
2. Favourite lunch choice	C
3. Notes about today's weather	D
4. Minutes each student read	N
5. Type of shoes worn	C
6. Height of each seedling in centimetres	N
7. Notes about playground behaviour	D
8. Favourite book genre	C

WHAT IS THE DATA?

PAGE 2: QUALITY QUESTIONS

Name: _____



Circle the stronger question in each pair.

☐

1A. What do you like?

☐

1B. Which fruit do you prefer:
apple, banana, orange or pear?

☐

2A. Is maths fun?

☐

2B. Which maths activity helps you
learn best: games, problems, tools
or discussion?

☐

3A. Where do you go?

☐

3B. How do you usually travel to school?

☐

4A. Do you read?

☐

4B. How many minutes did you
read yesterday?

Rewrite each question so it is clear and specific.

5. What is best?

6. Do you play?

WHAT IS THE DATA?

PAGE 2: QUALITY QUESTIONS

ANSWERS _____



Circle the stronger question in each pair.

☐ 1A. What do you like?

☒ 1B. Which fruit do you prefer: apple, banana, orange or pear?

☐ 2A. Is maths fun?

☒ 2B. Which maths activity helps you learn best: games, problems, tools or discussion?

☐ 3A. Where do you go?

☒ 3B. How do you usually travel to school?

☐ 4A. Do you read?

☒ 4B. How many minutes did you read yesterday?

Rewrite each question so it is clear and specific.

5. What is best?

Which playground activity do you prefer: soccer, skipping, handball or reading?

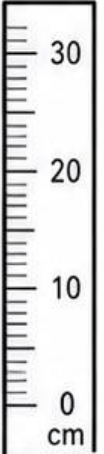
6. Do you play?

How many days did you play outdoors last week?

Name: _____

COLLECT AND CATEGORISE

SCHOOL GARDEN DATA



Seedling heights:

12 cm, 18 cm, 24 cm, 17 cm, 29 cm, 22 cm,
15 cm, 31 cm, 26 cm, 19 cm, 23 cm, 14 cm

Sort the seedling heights into the categories below

Short:

under 15 cm



Medium:

15 to 24 cm



Tall:

25 cm or more



Category	Tally	Total
Short		
Medium		
Tall		

1. Which category has the most seedlings?

2. Which category has the least seedlings?

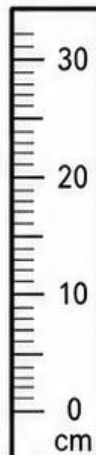
3. What is the difference between the most and least?

4. How many seedlings were measured?

ANSWERS

COLLECT AND CATEGORISE

SCHOOL GARDEN DATA



Seedling heights:

12 cm, 18 cm, 24 cm, 17 cm, 29 cm, 22 cm,
15 cm, 31 cm, 26 cm, 19 cm, 23 cm, 14 cm

Sort the seedling heights into the categories below

Short:

under 15 cm



Medium:

15 to 24 cm



Tall:

25 cm or more



Category	Tally	Total
Short		2
Medium		7
Tall		3

1. Which category has the most seedlings?

Medium

2. Which category has the least seedlings?

Short

3. What is the difference between the most and least?

5

4. How many seedlings were measured?

12

TABLES AND TALLIES

LUNCHTIME FRUIT SURVEY

Name: _____

Use the raw responses to complete the frequency table.

Apple, Banana, Apple, Orange, Grapes, Apple
Pear, Banana, Apple, Banana, Orange, Apple
Grapes, Banana, Pear, Apple, Orange, Banana
Apple, Grapes, Orange, Pear, Banana, Apple



Fruit	Tally	Total
Apple		
Banana		
Orange		
Pear		
Grapes		

1. How many responses were collected?

2. Which fruit was chosen most?

3. What is the difference between Apple and Pear?

4. Which two fruits have equal totals?

TABLES AND TALLIES

LUNCHTIME FRUIT SURVEY

ANSWERS

Use the raw responses to complete the frequency table.

Apple, Banana, Apple, Orange, Grapes, Apple
Pear, Banana, Apple, Banana, Orange, Apple
Grapes, Banana, Pear, Apple, Orange, Banana
Apple, Grapes, Orange, Pear, Banana, Apple



Fruit	Tally	Total
Apple		8
Banana		6
Orange		4
Pear		3
Grapes		3

1. How many responses were collected?

24

2. Which fruit was chosen most?

Apple

3. What is the difference between Apple and Pear?

5

4. Which two fruits have equal totals?

Pear and Grapes

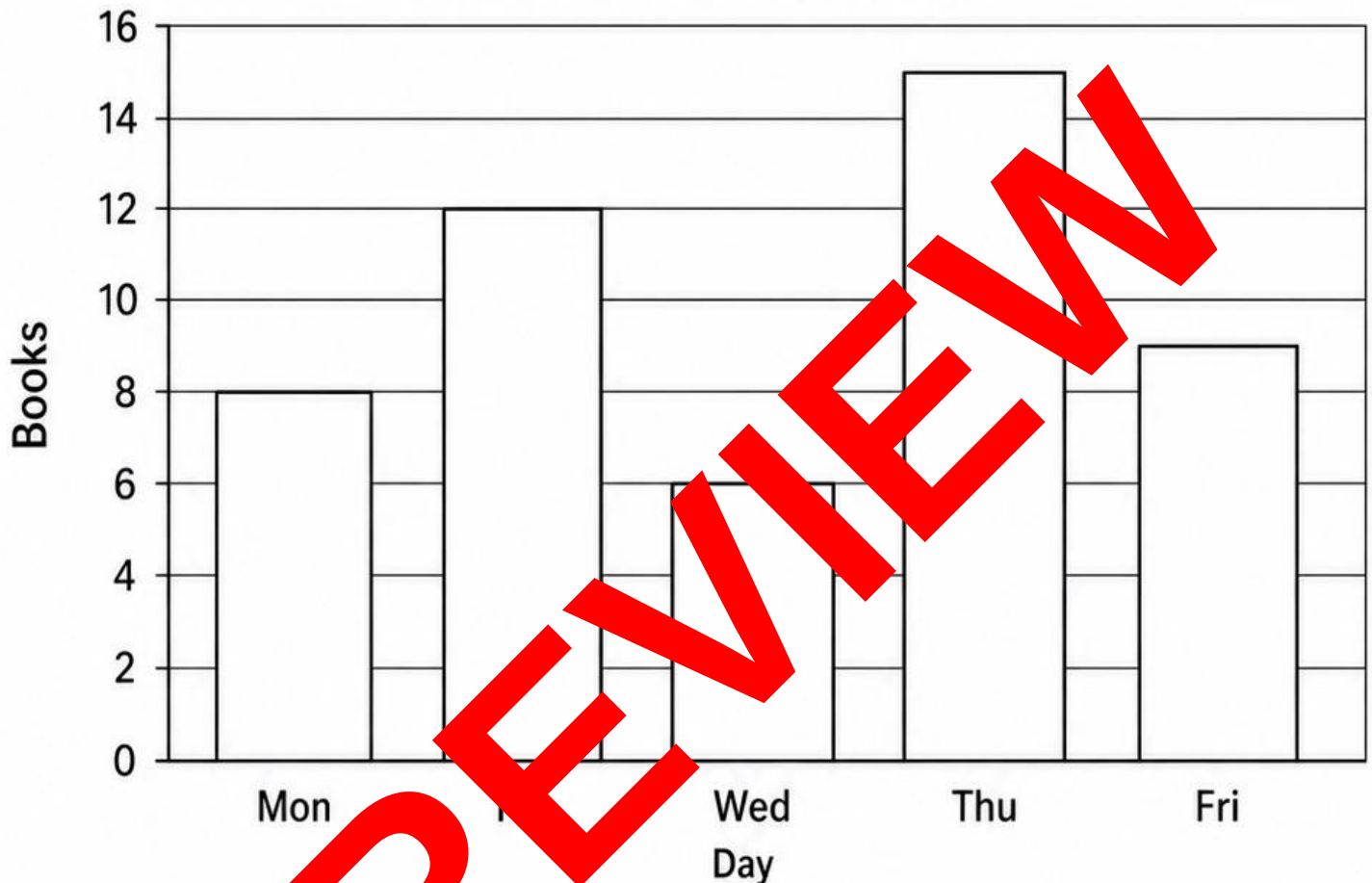
READ AND COMPARE GRAPHS

PAGE 1: LIBRARY BOOKS BORROWED



Name: _____

LIBRARY BOOKS BORROWED



1. Which day had the most books borrowed?

2. Which day had the least books borrowed?

3. How many more books were borrowed on Thu than Wed?

4. How many books were borrowed on Mon and Fri altogether?

5. How many days were above 8 books?

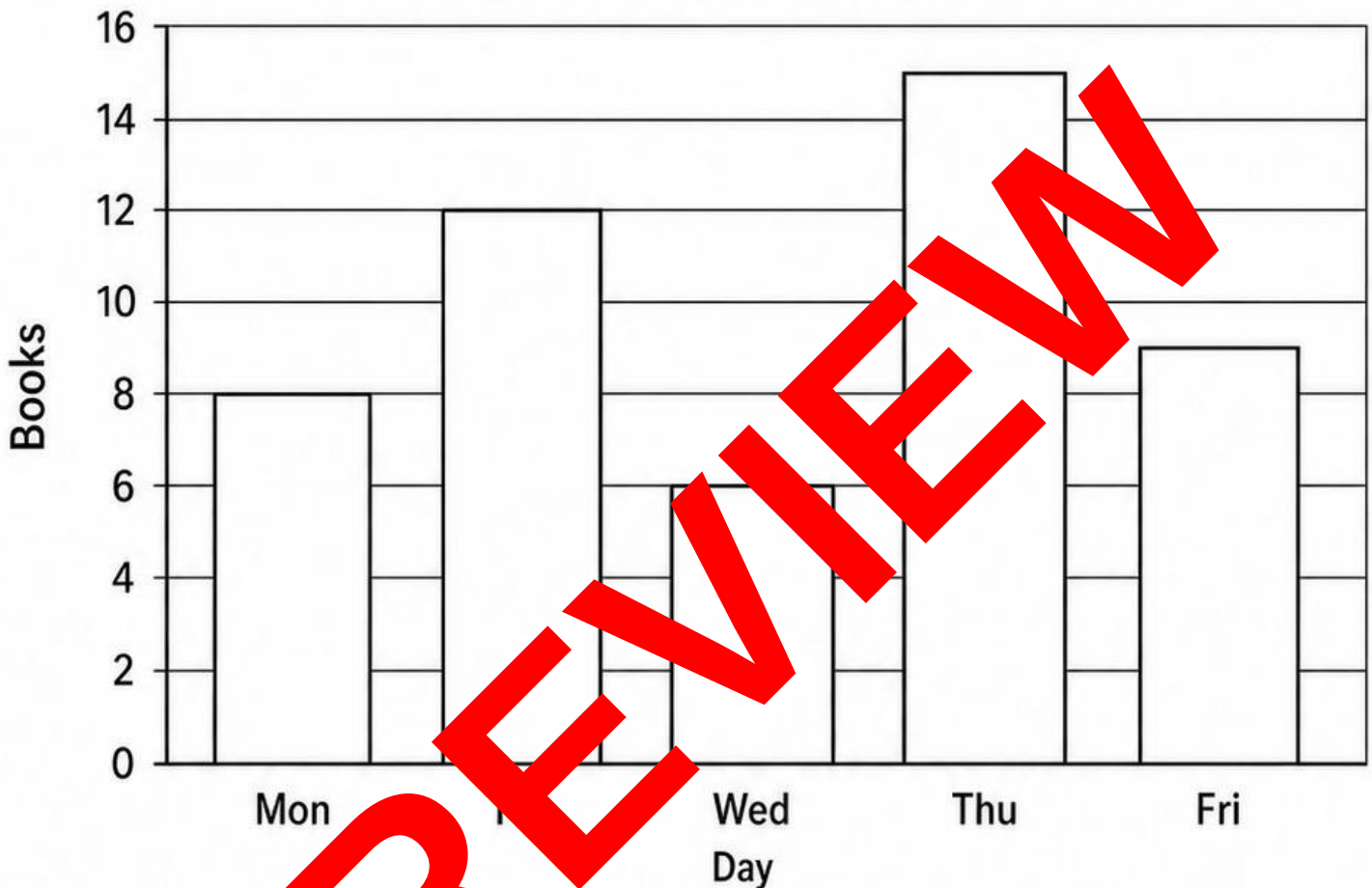
READ AND COMPARE GRAPHS

PAGE 1: LIBRARY BOOKS BORROWED



ANSWERS _____

LIBRARY BOOKS BORROWED



1. Which day had the most books borrowed?

Thu

2. Which day had the least books borrowed?

Wed

3. How many more books were borrowed on Thu than Wed?

9

4. How many books were borrowed on Mon and Fri altogether?

17

5. How many days were above 8 books?

3

READ AND COMPARE GRAPHS

PAGE 2: FAVOURITE RECESS ACTIVITY



Name: _____

Activity	Total
Soccer	7
Skipping	5
Handball	9
Reading	4
Drawing	5



1. How many students took part in Soccer?

2. Which activity was most popular?

3. How many more students chose Soccer than Reading?

4. Which two activities have equal totals?

5. Write one true statement about the data.

READ AND COMPARE GRAPHS

PAGE 2: FAVOURITE RECESS ACTIVITY



ANSWERS _____

Activity	Total
Soccer	7
Skipping	5
Handball	9
Reading	4
Drawing	5



1. How many students took part?
30
2. Which activity was most popular?
Handball
3. How many more students chose Soccer than Drawing?
2

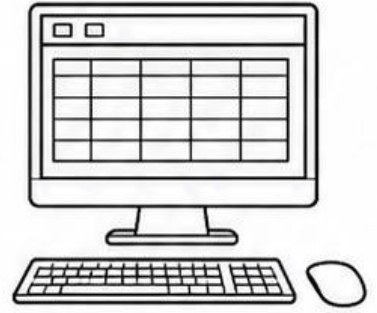
4. Which two activities have equal totals?
Skipping and Drawing

5. Write one true statement about the data.

Handball was the most popular, with 9 students.

DIGITAL DATA SORTING

Name: _____



A spreadsheet recorded the number of class pets.

Pet	Count
Dog	8
Cat	6
Fish	3
Bird	5
Rabbit	2

1. Sort the data from greatest to least.

Rank	Pet	Count
1		
2		
3		
4		
5		

2. What is the total number of pets?

3. Which pet has the smallest count?

4. Which display is best for comparing these categories?



Column graph



Pie chart

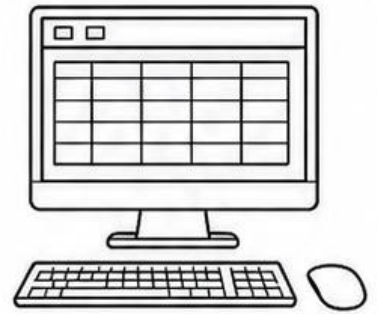


Timeline

5. Explain one way software can help sort or display data.

DIGITAL DATA SORTING

ANSWERS _____



A spreadsheet recorded the number of class pets.

Pet	Count
Dog	8
Cat	6
Fish	3
Bird	5
Rabbit	2

1. Sort the data from greatest to least.

Rank	Pet	Count
1	Dog	8
2	Cat	6
3	Bird	5
4	Fish	3
5	Rabbit	2

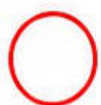
2. What is the total number of pets?

24

3. Which pet has the smallest count?

Rabbit

4. Which display is best for comparing these categories?



Column graph



Pie chart



Timeline

5. Explain one way software can help sort or display data.

It can sort values and create a graph quickly.

DATA INVESTIGATION CHALLENGE

PAGE 1: PLAN AND ORGANISE



Name: _____

Our school is choosing a new lunchtime club. A fair survey of 24 students recorded these raw responses:

Coding, Art, Dance, Chess, Coding, Gardening
Art, Coding, Dance, Coding, Chess, Art
Gardening, Dance, Coding, Chess, Art, Dance
Coding, Gardening, Chess, Art, Dance, Coding

1. Is this numerical or categorical data?

2. Give one reason the survey method was fair.

Club	Tally	Total
Art		
Chess		
Gardening		
Coding		
Dance		

3. How many responses should the totals add to?

DATA INVESTIGATION CHALLENGE

PAGE 1: PLAN AND ORGANISE



ANSWERS

Our school is choosing a new lunchtime club. A fair survey of 24 students recorded these raw responses:

Coding, Art, Dance, Chess, Coding, Gardening
Art, Coding, Dance, Coding, Chess, Art
Gardening, Dance, Coding, Chess, Art, Dance
Coding, Gardening, Chess, Art, Dance, Coding

1. Is this numerical or categorical data?

Categorical

2. Give one reason the survey method was fair.

Each student answered once using the same question.

Club	Tally	Total
Art		5
Chess		4
Gardening		3
Coding		7
Dance		5

3. How many responses should the totals add to?

24

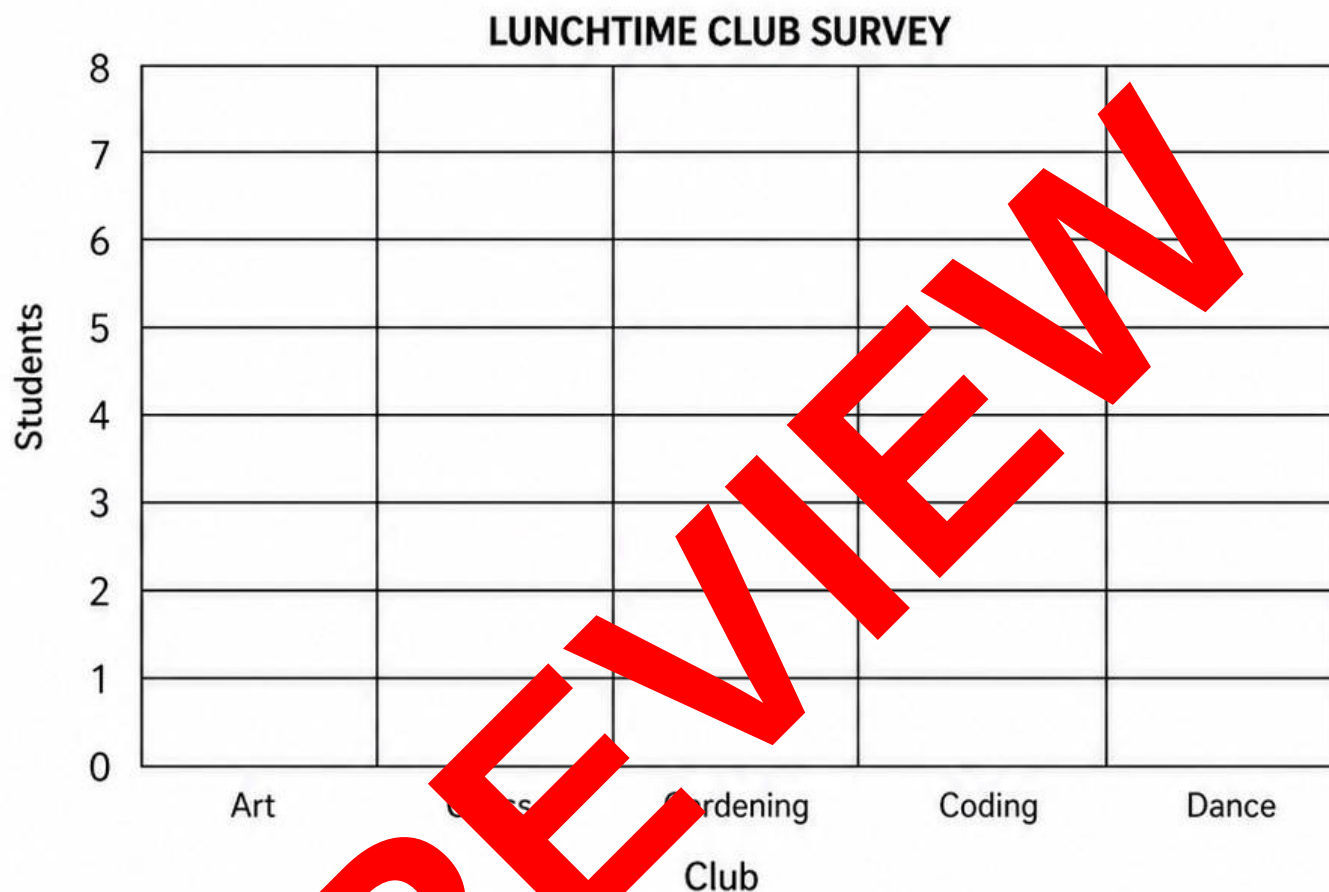
DATA INVESTIGATION CHALLENGE

PAGE 2: REPRESENT AND INTERPRET



Name: _____

Use your table from Page 1 to draw a column graph.



1. Which club was most popular?

2. Which club was least popular?

3. How many more students chose Coding than Gardening?

4. Which two clubs had equal totals?

5. Write a conclusion that answers the survey question.

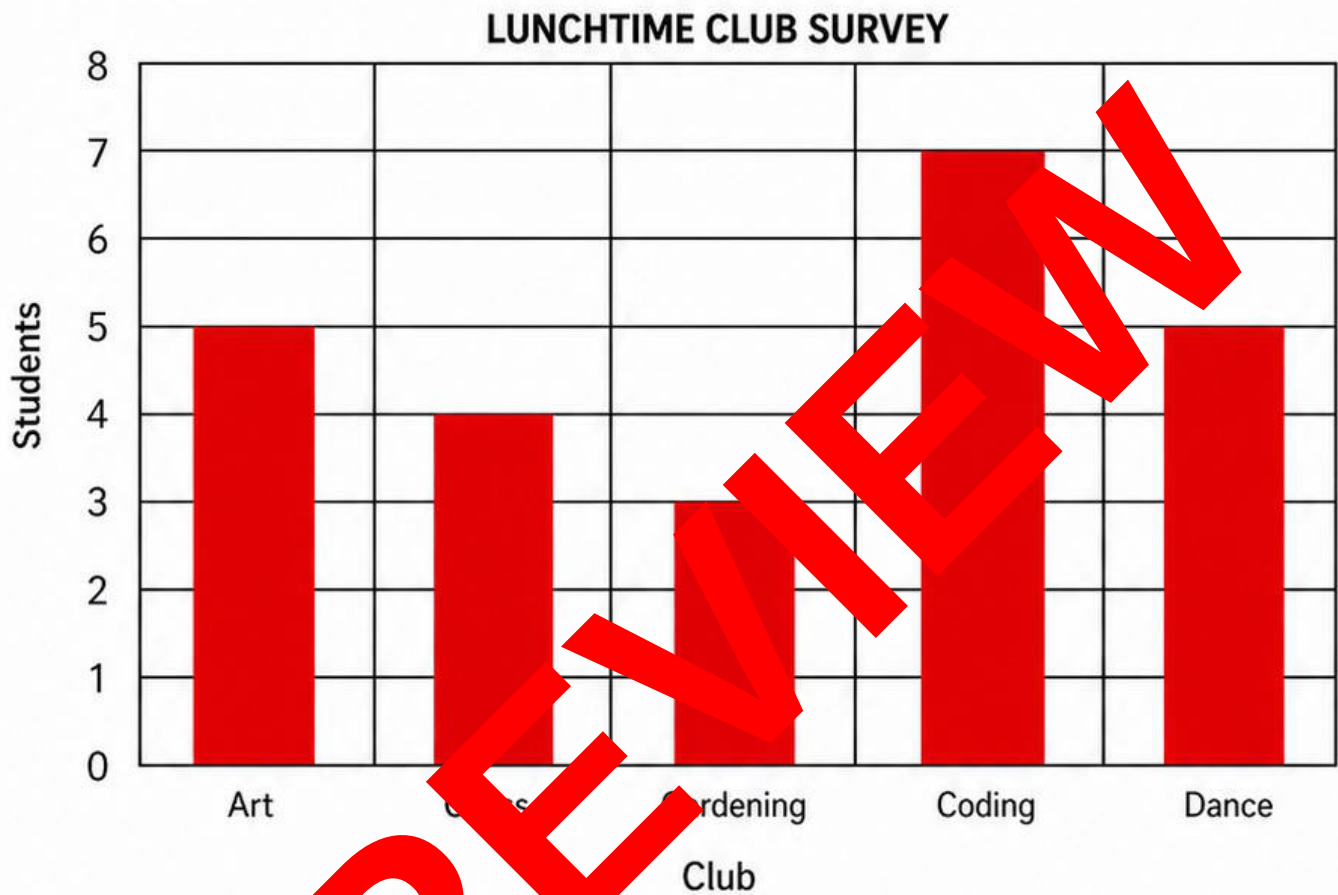
DATA INVESTIGATION CHALLENGE

PAGE 2: REPRESENT AND INTERPRET



ANSWERS

Use your table from Page 1 to draw a column graph.



1. Which club was most popular?
Coding
2. Which club was least popular?
Gardening
3. How many more students chose Coding than Gardening?
4

4. Which two clubs had equal totals?
Art and Dance

5. Write a conclusion that answers the survey question.
Coding was the most popular choice, with 7 votes.

DEALING WITH DATA RUBRIC

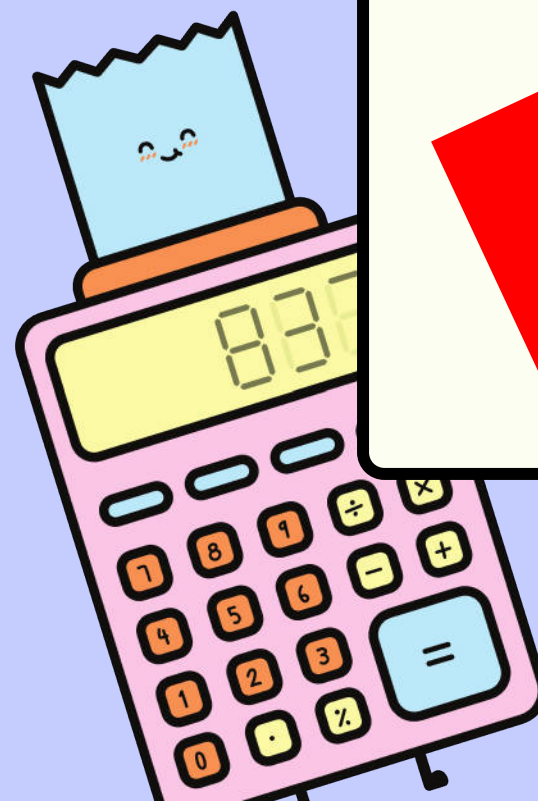
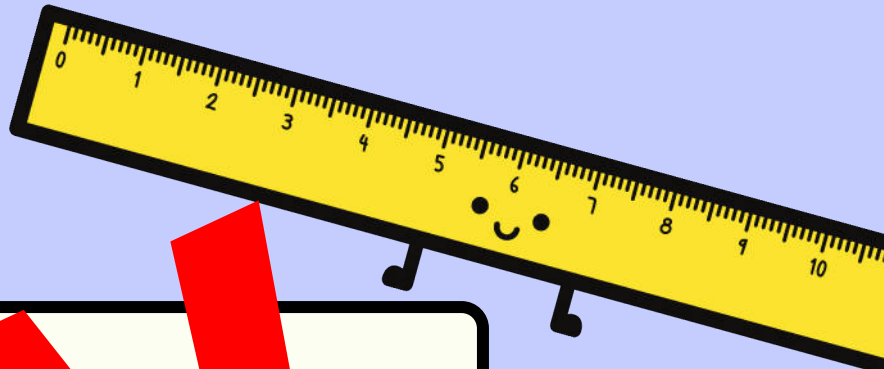
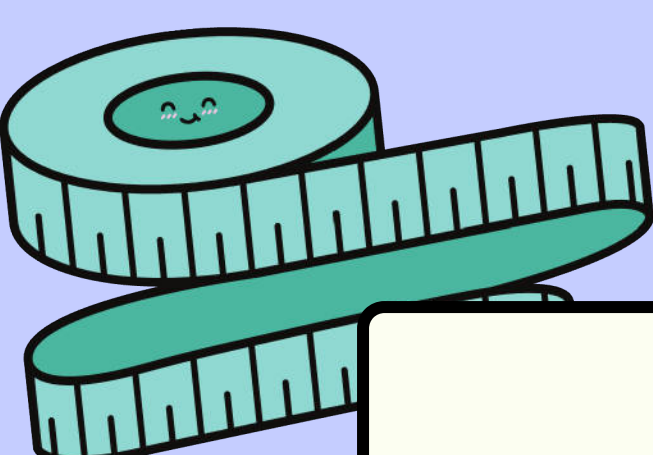


Student: _____

Date: _____

Criteria	BEGINNING	DEVELOPING	ACHIEVING	CONFIDENT	EXCEEDING
Question and planning	Unclear question	Question reads more clearly	Clear, answerable question	Clear question and fair plan	Purposeful question; detailed fair plan
Data collection	Incomplete record	Some relevant data	Relevant data collected fairly	Systematic collection; sample checked	Efficient collection; fairness explained
Organisation and tallies	Incomplete table	Some correct tallies	Accurate tallies, headings and totals	Clear categories; totals checked	Precise organisation; choices explained
Data display	Incomplete display	Some data shown	Suitable display with titles and labels	Accurate display with scale or key	Highly effective, easy-to-read display
Interpretation and reasoning	Statement not supported	Names one feature	Correct comparison and conclusion	Uses numbers as evidence	Explains patterns and limitations
Accuracy and communication	Many errors	Some correct work	Accurate and easy to follow	Accurate and clearly presented	Precise, concise and independently checked

Teacher feedback: _____



PREVIEW

Dealing with Data



Data Detective Mission

- Ask a clear question that can be answered with data
- Collect information fairly and consistently.
- Organise, display and interpret what you find

PREVIEW



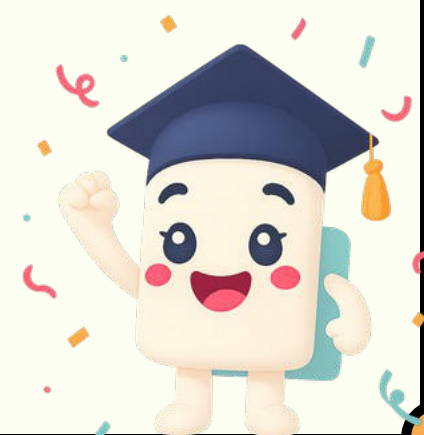
What Is Data?

Data is information we collect to answer a question.

It may be numbers, categories or descriptions.

A data investigation turns information into evidence.

PREVIEW



Three Types of Data

- Numerical data uses numbers, such as shoe sizes or heights.
- Categorical data uses groups, such as pets or colours.
- Descriptive data uses words, such as texture or weather observations.



Ask a Clear Question

A useful question is specific, fair and easy to answer.

Weak: What do you like?

Stronger: Which playground activity do you prefer: handball, skipping, drawing or reading?



Fair Ways to Collect Data

- Ask every participant the same question.
- Record each response once.
- Include a suitable group of people
- Do not guide people towards the answer



Plan a Data Investigation

1. Decide what you want to find out.
2. Choose who or what to observe.
3. Select a fair collection method.
4. Prepare categories and a recording table.

PREVIEW



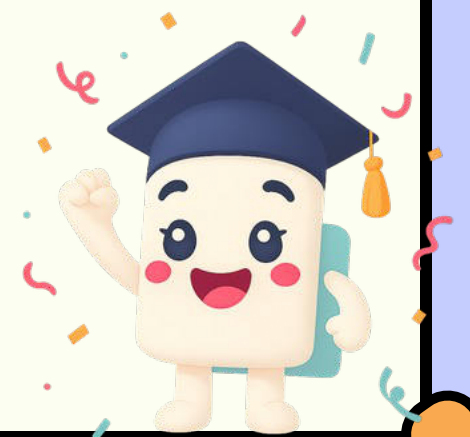
Sort and Categorise

Group similar responses together.

Categories must be clear and must not overlap.

Every response should have one sensible place

PREVIEW



Tallies Make Counting Easy

Use one stroke for each response.

The fifth stroke crosses the first four.

Grouped tallies make totals quicker to check.

PREVIEW



Build a Frequency Table

A frequency table needs:

- a clear category heading
- a tally column
- a total or frequency column
- accurate counts for each category



Check Your Totals

Add the category totals.

The sum should match the number of responses collected.

If it does not match, recount the row and column totals.

PREVIEW



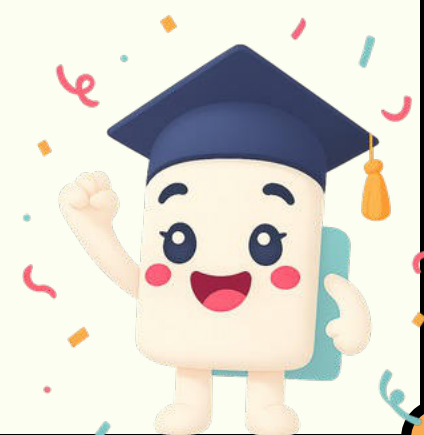
Choose the Best Display

Use a column graph to compare category amounts.

Use a pictograph for simple counts with a clear key.

Use a pie chart to show parts of one whole.

PREVIEW



Make a Column Graph

1. Write a useful title.
2. Label both axes.
3. Use equal steps on the number scale.
4. Draw equal-width columns starting from zero.
5. Check every height to make sure that the columns are correct.



Read a Column Graph

Look at the scale before reading a column.

Find the highest and lowest categories.

Compare values and calculate differences when needed.

PREVIEW



Use a Pictograph

A pictograph uses pictures or symbols to represent data.

Always read the key first.

If one symbol represents two votes, then two symbols represent four votes.

PREVIEW



Read a Pictograph

Count the symbols in each row.

Multiply by the value shown in the key.

Check whether half-symbols or other fractional symbols are used.

PREVIEW



What About Pie Charts?

A pie chart shows how one total is divided into parts.

Larger sectors represent larger shares.

Use the whole circle and labels to compare categories.

PREVIEW



Compare Two Categories

Use the display or table to read both values.

State which category is greater or smaller.

Include the numbers in your comparison.

PREVIEW



Find the Difference

Difference tells how many more or fewer.

Subtract the smaller value from the larger value.

Example: 9 votes – 4 votes = a difference of 5 votes.

PREVIEW



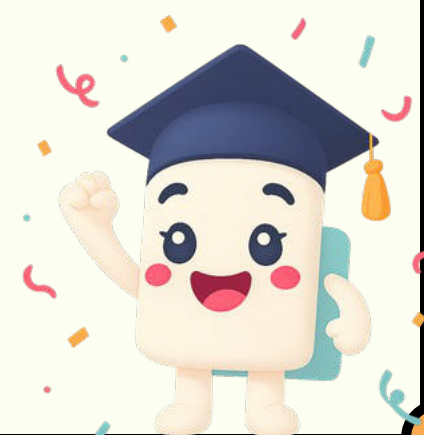
Notice Patterns

Ask: What is most common? What is least common?

Are any values equal? Is there an unusual result?

Describe only patterns the data actually supports.

PREVIEW



Use Software to Organise Data

A spreadsheet can store values in rows and columns.
It can sort data, calculate totals and create a graph.
You still need to check labels, scales and accuracy.

PREVIEW



Interpret, Explain and Conclude

Answer the original investigation question.

Use exact values as evidence.

Explain what the display shows without making unsupported claims.

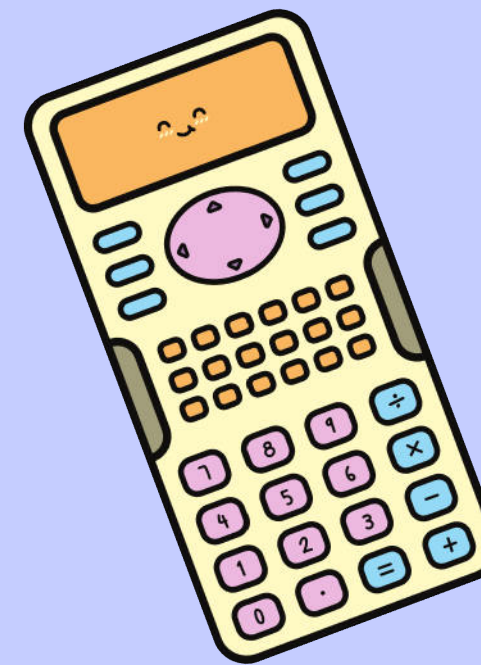
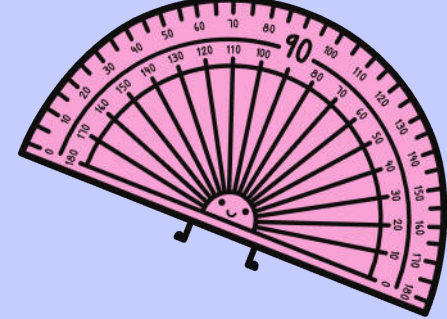
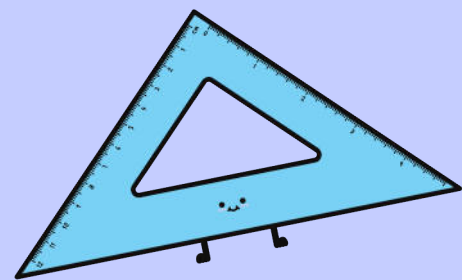
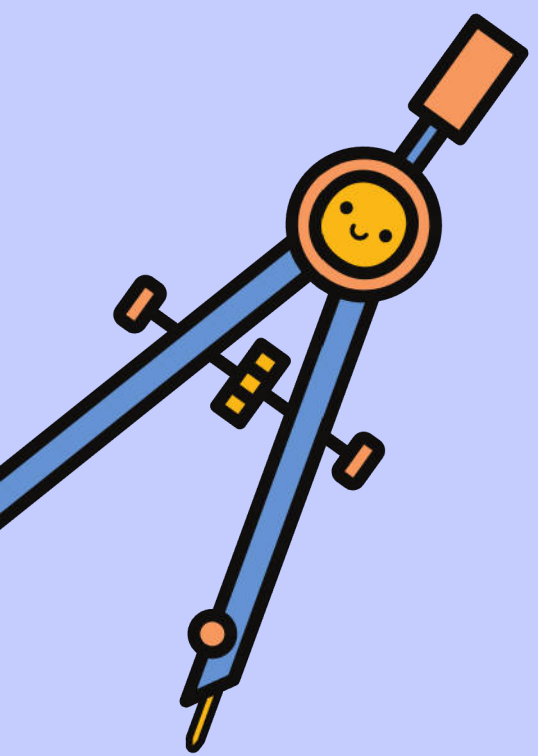
PREVIEW



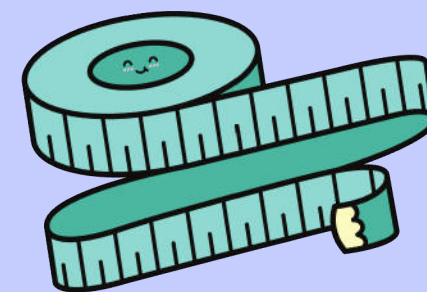
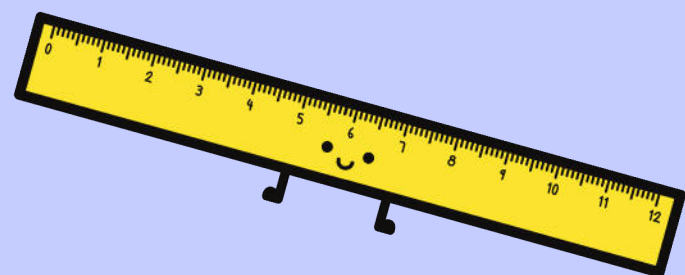
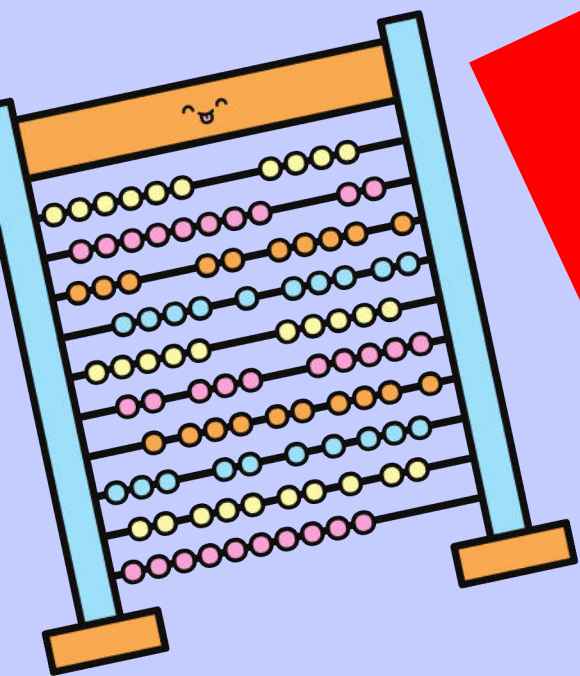
Data Investigation Checklist

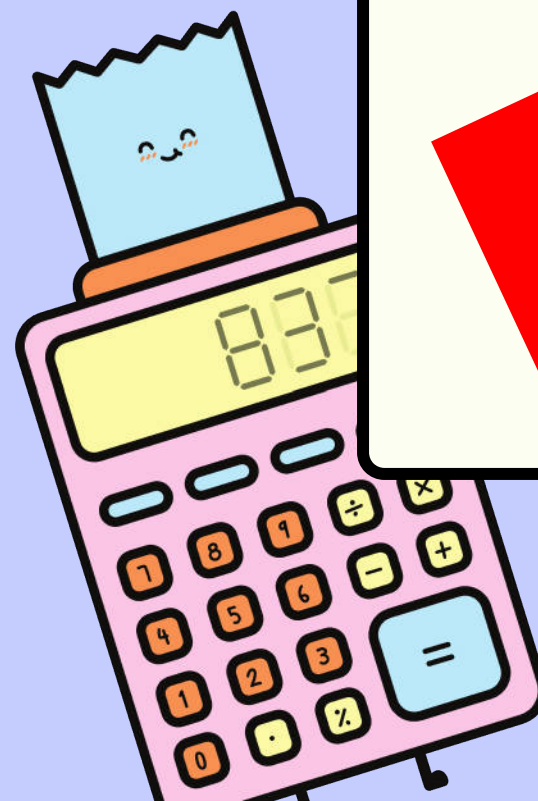
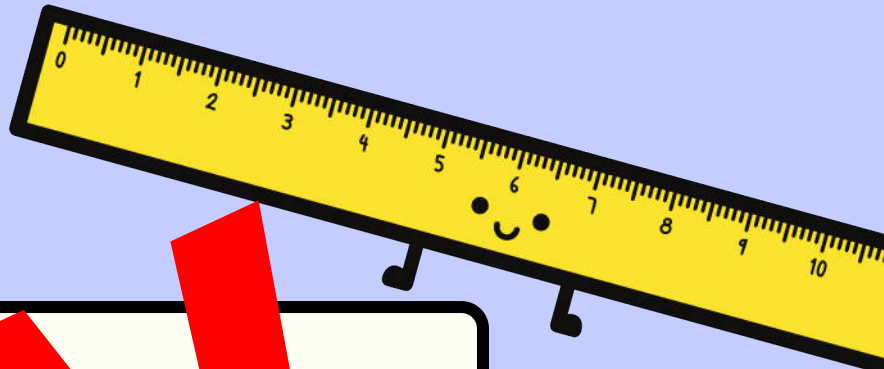
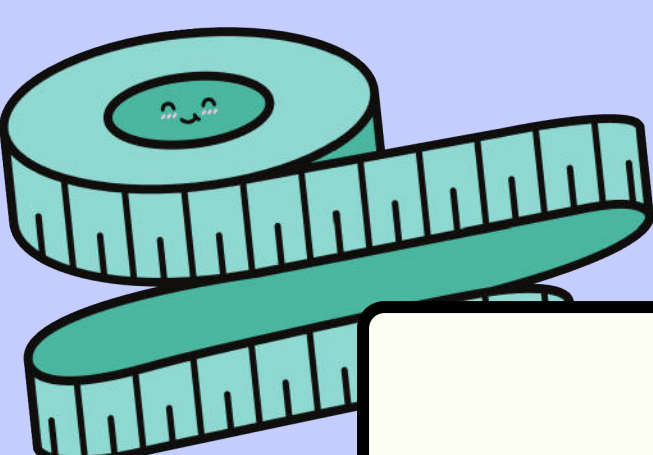
- ✓ Clear question
- ✓ Fair collection method
- ✓ Accurate categories, tallies and totals
- ✓ Suitable display with title, labels and scale
- ✓ Evidence-based conclusion





Well Done!





PREVIEW

Dealing with Data Quiz



Question 1

Which choice is numerical data?

- A. Hair colours
- B. Shoe sizes
- C. Favourite games
- D. Descriptions of clouds

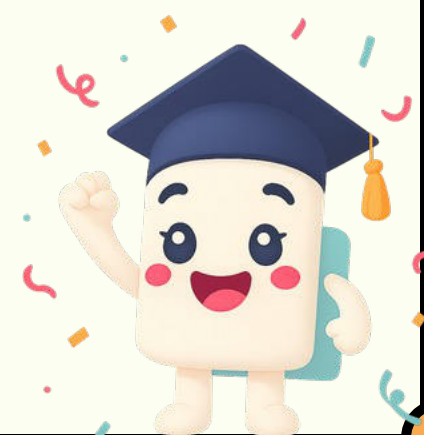


Answer 1

Correct answer: B. Shoe sizes

Shoe sizes are recorded using numbers

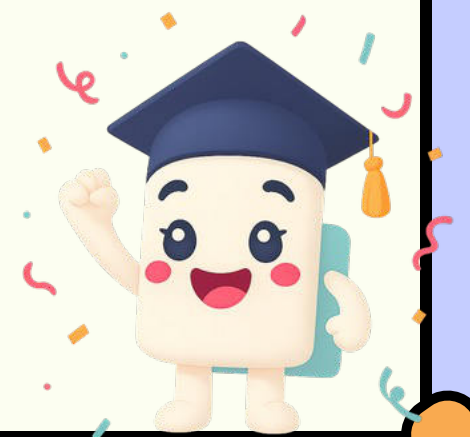
PREVIEW



Question 2

Which survey question is the clearest and fairest?

- A. What do you like?
- B. Which playground activity do you prefer: handball, skipping, drawing or reading?
- C. Handball is best.
- D. Do you choose a fun activity?

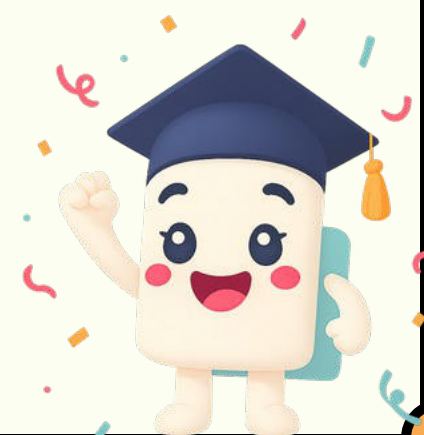


Answer 2

Correct answer: B.

It gives everyone the same clear question and useful response strategies.

PREVIEW



Question 3

True or false?

A tally group of five has four vertical strokes crossed by a fifth stroke

PREVIEW

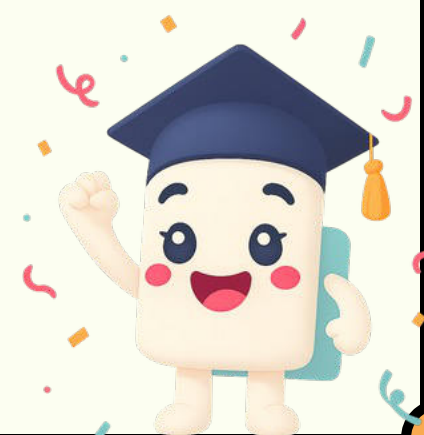


Answer 3

True.

Grouping tallies in fives makes counting and checking easier.

PREVIEW



Question 4

Short answer

A class records seven votes for Coding.
What number belongs in the Coding total column.

PREVIEW



Answer 4

7

The frequency is the number of responses in each category.

PREVIEW



Question 5

Which display is usually best for comparing category totals?

- A. Column graph
- B. Timeline
- C. Map
- D. Clock

PREVIEW

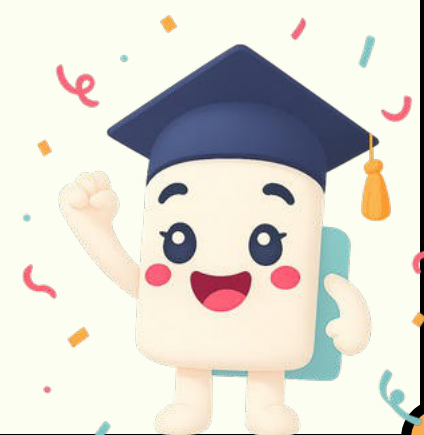


Answer 5

Correct answer: A. Column graph

Separate columns make category amounts easy to compare.

PREVIEW



Question 6

True or false?

A column graph can use unequal number of steps on its vertical scale and still be fair.

PREVIEW

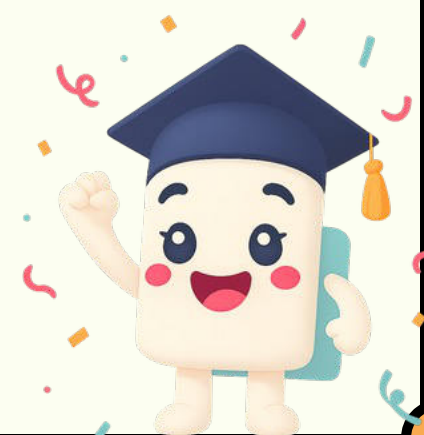


Answer 6

False.

The scale must use equal steps so that the heights represent values accurately.

PREVIEW

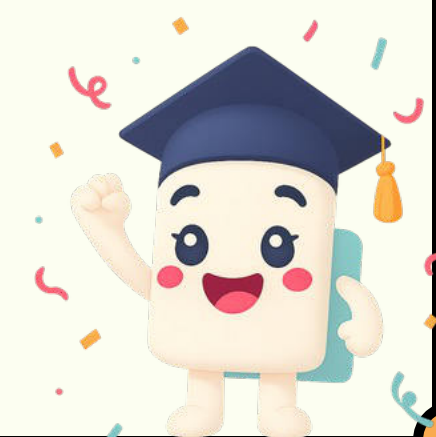


Question 7

A pet survey shows: Dog 8, Cat 6, Fish 3, Bird 5.

Which pet has the highest total, and what is its total?

PREVIEW



Answer 7

Dog, with 8 responses.

Eight is the greatest value in the table

PREVIEW



Question 8

Coding received 7 votes and Gardening received 3 votes.

How many more votes did Coding receive?

PREVIEW

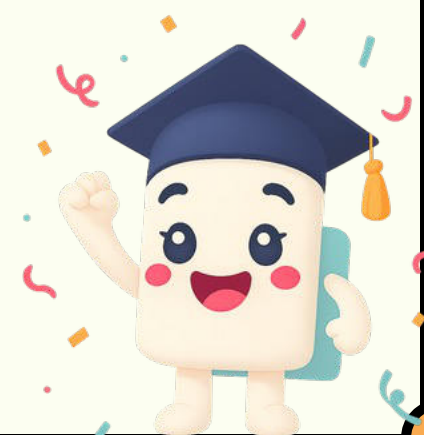


Answer 8

4 more votes

$$7 - 3 = 4.$$

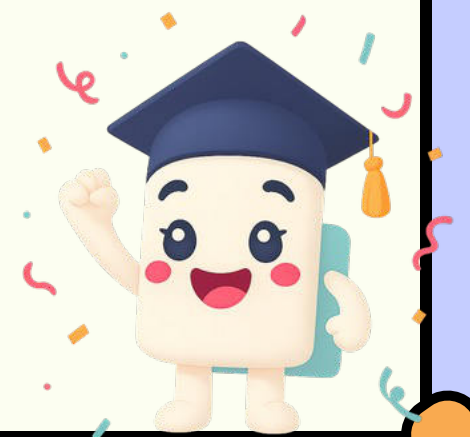
PREVIEW



Question 9

Which is the strongest conclusion for these totals: Art 5, Coding 7, Dance 10, Music 12.

- A. Everyone chose Coding.
- B. Coding was most popular with 7 votes.
- C. Art was least popular with 5 votes.
- D. Dance had no votes.



Answer 9

Correct answer: B.

It states the supported pattern and includes the exact value.

PREVIEW



Question 10

The category totals are 5, 4, 3, 7 and 5.

How many responses were collected altogether?

PREVIEW



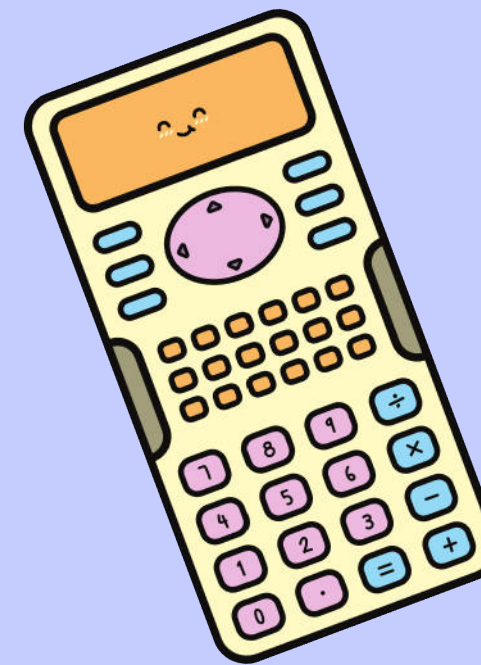
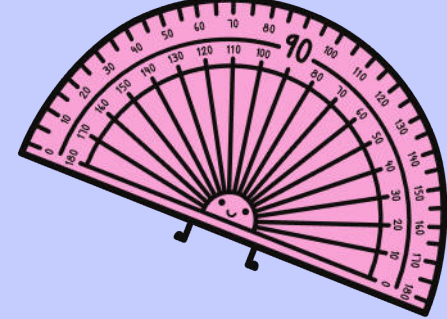
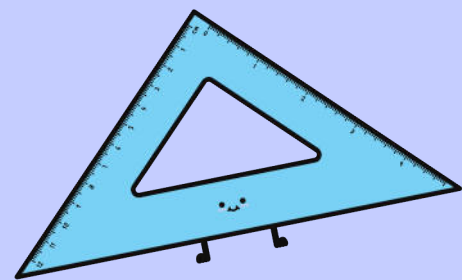
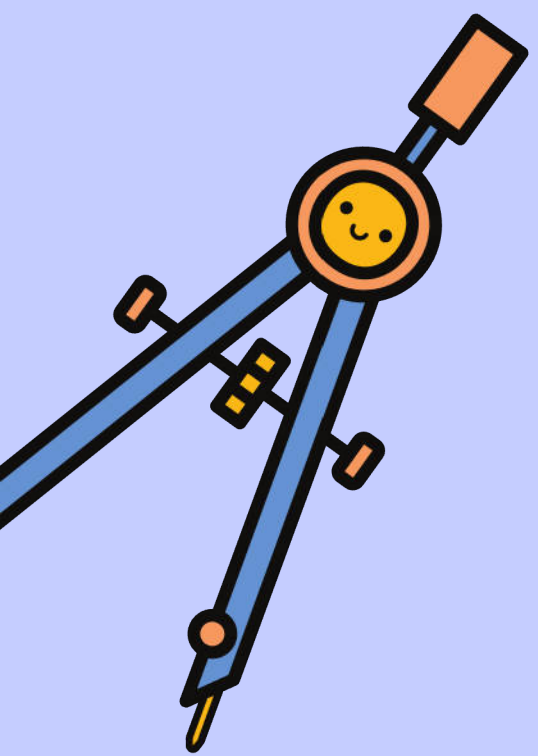
Answer 10

24 responses

$$5 + 4 + 3 + 7 + 5 = 24.$$

PREVIEW





Well Done!

